PAGE 6 PUBLISHING's

# NEW ATARI USER

Issue 52 £1.95
October/November

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BILL HALSALL'S NEW GAME

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*(as it relates to Atari)*

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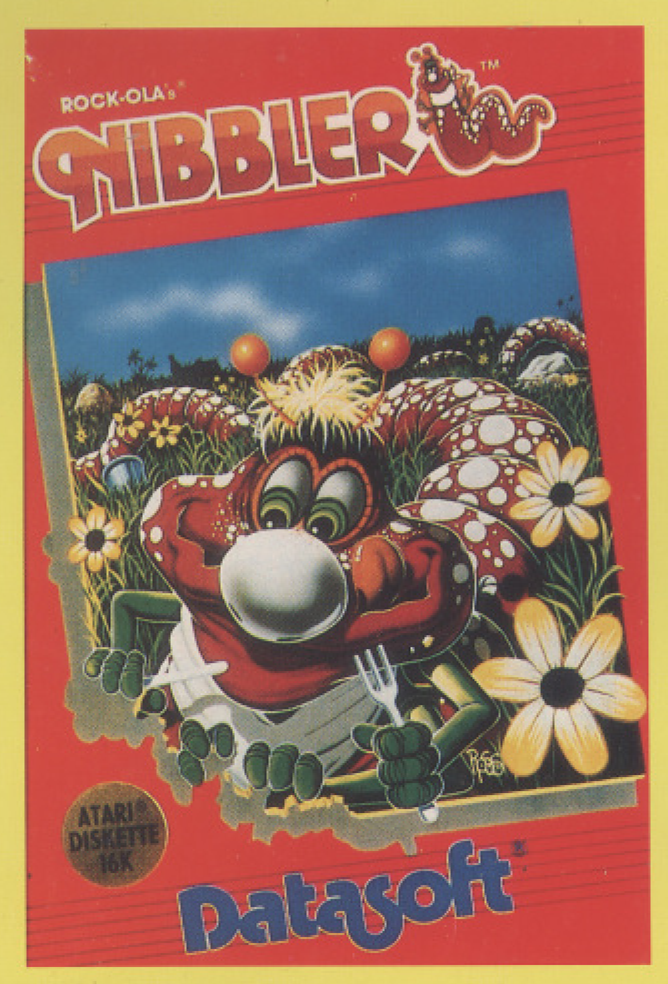
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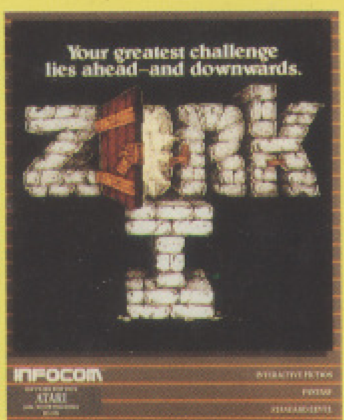

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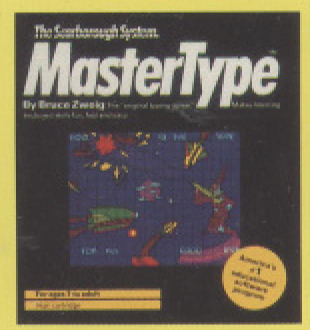



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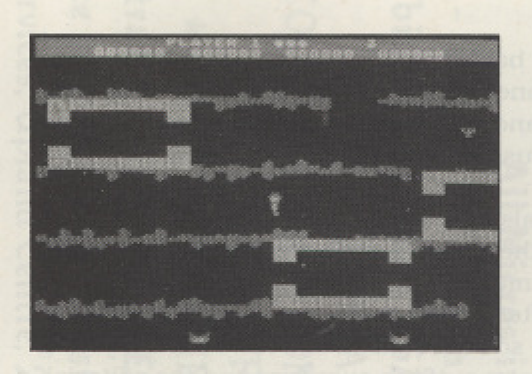
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ALL ITEMS MAY BE ORDERED WITH THE ORDER FORM ON PAGE 52 OR BY WRITING TO THE ACCESSORY SHOP, PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR
CREDIT CARD ORDERS MAY BE TELEPHONED TO 0785 213928

'The magazine for the Dedicated Atari User'

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Issue 52 - October/November 1991



**BAT PACK**

**Super scrolling fun in the caves**



## SUBSCRIPTIONS

Annual subscription rates (6 issues)

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|---|---|
| UK | £10.00 |
| Europe | £15.00 |
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## NEW ATARI USER ON DISK

A disk containing all of the 8-bit programs from each issue of NEW ATARI USER is available either separately or on subcription. Single price £2.95 per disk, Subscription rates (6 issues)

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### SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles, all payments being made at the end of the second month shown on the cover of the issue concerned.



**The next issue of NEW ATARI USER will be on sale 21st November**
**Editorial copy date is 14th October**


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PAGE 6 PUBLISHING's NEW **ATARI** USER

**Issue 52**
**October/November 1991**
**'The Magazine for the Dedicated Atari User'**
ISSN No. 0958-7705

**THE CREDITS**

All of the usual stuff is on page 3 but here are the people who made this issue possible.

**Les Ellingham** battled on surviving the inquisition from the Tax Man whilst watching the post build up on his desk trying to assuage his feelings of guilt at not replying to letters by convincing himself that getting the magazine out on time is the most important consideration

**Sandy** still managed to do the ads and other things whilst coping with duff disks and spending hours trying to get the Post Office to deliver our mail to the right address (and they have got the cheek to put up the prices!)

**Paulette** still can't leave a good mess where she finds it, all you have to do is unload a big order in the corridor and next day it's gone but she is running out of ideas on what to change so maybe we'll be able to find all those missing things soon!

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

| | |
|---|---|
| **John S Davison** | **John Davison jr** |
| **John Sweeney** | **Paul Rixon** |
| **Damon Howarth** | **Ian Finlayson** |
| **Peter Hickman** | **The Tipster** |

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their enthusiasm with other Atari users.

The cover this time is a simple old screen shot of **BAT PACK** by **Bill Halsall** taken with an Olympus OM1 and a zoom telephoto lens set at 150mm using an exposure of 1/15 second at f4. Sounds impressive doesn't it? Basically I just pointed the camera and pressed that little silver button on top.

*Following on from that compilation album I never did get the ones mentioned (although Ann O'Driscoll very kindly nearly bought a Michael O'Suillebhain CD for me, thanks Ann) but I did pick up one by Pierce Turner which turned out to be one of those brilliant, exciting discoveries that come only once in a while and which has been played almost every day since! Also Maura O'Connell who was always good in De Danaan and is still good on her own. The most inspiring has to be Runrig whose new album is as brilliant as ever and plays as I write this (about the fifth time today!). Others were Bill Staines, a master of story telling song, Richie Havens, Helen O'Hara with a New Age album called Romanza, quite beautiful and featuring Robin Williamson, speaking of whom I now have the first Incredible String Band album to be issued on CD along with Mike Heron's first solo. I was a bit worried that they might sound dated, but none of it. Still the best band that ever lived!*

**The next issue of NEW ATARI USER could feature YOUR article or program, so SEND IT IN NOW!**

*PAGE 6 shows just what you can do with your Atari. NEW ATARI USER has always been created entirely with Atari equipment, initially on the XL but more lately with a Mega ST and other stuff, who needs PC's or Macs! With the exception of the final output on a Linotron and the use of an in-house repro camera for the photos and listings everything is done on the ST. Hardware includes a Mega ST2 (upgraded to 4Mb), SM125 Monitor, Supra 30Mb Hard Disk, an Atari Laser Printer, Citizen 124D printer, Philips CM8833 monitor, 130XE, XF551 disk drive, 810 disk drive, 850 interface, NEC 8023 printer. Principal software used is Protext and Fleet Street Publisher 3.0. Other software includes Kermit, Tari-Talk, Turbo Basic and various custom written programs on the XL/XE. Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARITALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages as Postscript files is sent to a typesetting bureau to be output on a Linotron and, hey presto, finished pages are sent back exactly as you see them. It really does work! All that is left is to drop in the listings and photos.*
*Well, it's not quite as easy as that but you get the idea!*

# Editorial

This is our first issue on the 'firm sale' basis mentioned in the last issue and we hope that things work out as planned. There are far fewer copies in the shops so you must get in there quick and if any of your friends miss out on a copy tell them to order the missing copy from us and then either place an order with the newsagent or subscribe.

Lest you think that the past couple of editorials have been a little paranoid let me mention a quite interesting passage from another magazine. Those who read the credits will realise that I am interested in folk music and I have been taking a magazine called Folk Roots since it started. After a while it disappeared from the newsagents shelves, having gone on firm sale, so I subscribed and have been enjoying every issue since. Now Folk Roots is a similar size outfit to ourselves and the editorial for the current issue made very interesting reading. Let me quote a section

*"For a small publisher like ourselves, sale-or-return ought to mean that you're more widely available but it's a suicidal system; in reality you have very little control over whether your expanded print run gets to the right places for potential sales and you end up printing a lot of waste paper. We've been on 'firm sale' with the trade since not long after we finally went on the news stands in 1985. That does make it much harder to pick up casual readers and build a bigger circulation, but once you've heard of us, theoretically you can walk into any newsagents, order Folk Roots, and get a regular copy. I say 'theoretically' because although F.R. is handled by one of the main distribution companies, a hard-pressed local wholesaler will sometimes invent any kind of story rather than process a small order. The number of times we've been rung up by anxious readers who have been told an issue has not been published or, worse, that we've ceased publication altogether, is beyond belief."*

And I didn't write a single word of that! So you see that the problems are not yet over. You must keep vigilant and keep pressing the newsagents for a copy. Don't get fobbed off! They can get if if they want.

## SUBSCRIBE!

As always, I repeat that a subscription benefits us much more than a regular order through the news trade and now is the best time to subscribe. Incredibly the Post Office have the gall to put up their prices yet again and having already absorbed two price increases (not to mention the scandalous 25% increase on parcels last July) we cannot continue the subscription rate at its present ridiculously low sum. Subscriptions will increase from next issue but if you get in now you can enjoy the old rates, which offer you a considerable saving.

## SUPPORT

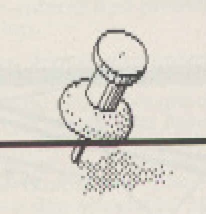
You know there are still one or two genuine folks supporting the Atari, like Robert Stuart up in Scotland who runs the EXCEL disk magazine and TIGER DEVELOPMENTS who have an advert in this issue (check the bonus on this issue's disk for a sample of the quality you can expect from them). Unfortunately we have now reached a situation where Atari owners don't trust newcomers, understandably so since all the problems people like XL/XE ALIVE and others have caused, and these folks may not get the response they deserve. The irony is, if you don't take that small chance when someone new comes along, you soon won't need to take any chances, for there won't be anybody supporting your machine. We sincerely hope that you give Tiger Developments and Excel a chance because they are doing their best to give you some support. If you find their products and service good write and tell us so that we can tell others, likewise if it's crap tell us that too. Above all don't just sit there and let the support of your machine die.

**IF YOU HAD ANY PROBLEMS OBTAINING THIS COPY OF NEW ATARI USER FROM YOUR NEWSAGENT PLEASE TELEPHONE US ON 0785 213928**

***IF YOU WANT TO SUBSCRIBE THIS IS YOUR LAST CHANCE AT THE PRESENT PRICES BECAUSE THE SUBSCRIPTION COST MUST BE INCREASED NEXT ISSUE. SUBSCRIBE NOW! - THE FORM IS ON PAGE ?? OR JUST GIVE US A CALL ON 0785 213928 AND USE YOUR CREDIT CARD***

# Mailbag



*Must remember to write to Mailbag*

*P.O. Box 54*
*Stafford*
*ST16 1DR*

## ADVENTURERS

**Following the recent closure of The Adventurers Club Ltd., three of the original reviewing team have decided to form a partnership and to start The Adventure & Strategy Club.**

**The club will continue in a similar style, quality and format as before, but will be under entirely new management, with no obligations to its predecessor. We will continue to produce the Reference Book of Adventure, built up from bi-monthly packs of new and updated material, and covering a wide range of subjects associated with adventure, strategy and role-playing games. The Reference Book includes a news section, comprehensive reviews of all types of adventure, hints, tips, solutions, maps, letters and articles.**

**Members will also have free access to the club's helpline, by mail or by telephone, and the opportunity to purchase a selection of software at discount prices.**

**The first issue will be published in September and further details can be obtained from Hazel Miller at the address below.**

**The Adventure & Strategy Club, 17, Sheridan Road, London, E12 6QT**

## ANY STOCKISTS?

**I am trying to compile a full list of retailers that stock Atari 8-bit software. If your readers could send me details of their local dealer with name, address and telephone number and a basic idea as to what sort of software they stock I would be most grateful.**

**I know this may seem like a strange request but many of us do have local dealers that we can use regularly, but other users don't know of them, so all that software is lying there with only one or two people buying it. Who knows if demand in the High Street increases then maybe software companies will take an interest in the Atari 8-bit again.**

**Jason L. Hibbert,**
84, Chequers Close, Pontefract, West Yorkshire, WF8 2TE

*I don't know what sort of response you'll have Jason, but it is a great idea to get together a current list of stockists. Who knows what sort of treasures are buried in shops around the country. If you do get a list together be sure and let us have a copy so that we can publish it and let other users know.*

## NO START

**I have a 130XE and recently the START button became faulty and will not work while trying to load a game. Do you know of any other button I could use instead, or of any other way I could load a game without using the START button.**

**David Corcoran,**
Dublin

*Sorry, David but you'll need that START button to boot machine language tapes. Quite often the problem can be cured by cleaning the contacts on the keyboard. You'll need to take the cover off by removing all the screws on the bottom and then you'll find that the keyboard can be lifted up to reveal a ribbon cable joining it to the main board. Very carefully ease this cable out of its socket and remove the keyboard entirely. Now carefully clean both sides of the contacts with some cotton wool or a cotton wool stick and refit the cable by easing it back into the socket. make sure it is all the way home and then refit the cover. Nine times out of ten you'll find that the problem with the START key has been solved. If this doesn't work then your only other option is likely to be a new keyboard but these are now quite hard to find.*

## US SOFTWARE

**I just finished reading Issue 51 of New Atari user and noticed the letter from Mark Greenall. The mystery software he is looking for is called Racing Destruction Set produced by Electronic Arts. I know because I own a copy of the game. It is very good but now quite tough to find. I have the addresses of four places in the USA which support the 8-bit Atari as follows**

**American TechnaVision**
**15338, Inverness Street**
**San Leandro, California**
**94579**
**B & C ComputerVisions**
**3257 Kifer Road, Santa Clara, California 95051**
**San Jose Computer**
**1278 Alma Court, San Jose, California 95112**
**Toad Computers**
**566 Baltimore Annapolis Blvd., Severna Park, MD**
**21146-3818**

**I know that American TechnaVision has Racing Destruction Set for $9.95. I hope that this information will be of use to Mark and your other readers.**

**Also tell Mr Ruebottom that Dam Busters was produced by Accolade Software and distributed by US Gold. If Mr Ruebottom needs any help with the Golden Oldies, I own copies of the 1984 and 1985 books of Atari software by Arrays Inc. The book gives titles, description and ratings for most of the great Atari software produced in the 8-bit heyday.**

**Prof. Willie C. Burnside Jr.**
Chicago, Illinois

## THE XF551 DISPELLING THE MYTHS?

**I own and use both 1050 and XF551 disk drives and appreciate them both very much, however, the XF551 is clearly superior. In issue 49 I was appalled to read the seemingly authoritative letter regarding the XF551. As the XF551 already has a much maligned reputation it was disturbing to see so much wrong and misleading information contributing further damage to that machine and the 8-bit community in general.**

**There are two significant components of the XF551; the drive mechanism and the interface circuit board. The drive mechanism is a 360K, 2 sided, 40 track per side, 300 RPM, 5.25" unit, which is apparently of the IBM standard type. It is rated at 300 RPM and has its own on board circuitry, which I believe controls this speed, not the microprocessor on the interface board. So changing the ROM on the interface will not affect the fixed speed of the mechanism.**

**Of the reputed XF551 incompatibilities I think the speed of the drive is an over-emphasised issue. There seems to be a lot of worry about the 300 RPM in terms of copy protected disks. True there are protection schemes that check the speed that sectors are loaded but this would also affect modified 810's and 1050's. Anyway, 300 RPM is only 4.9% faster than standard, which is almost insignificant. I only have two disks in my entire collection which won't load on the XF551 and I am not convinced it has anything to do with speed. There are other peculiarities of the machine which may be the cause of minor incompatibility (i.e. different operation characteristics and microprocessor and the presence of a configuration block).**

**Most people think of a drive as performing two basic functions; reading and writing information. In fact it performs a third distinct function; formatting. Contrary to what you may have read, the XF551 does not use the so called "timing hole" for controlling the speed. The hole is more correctly called an "index hole" and for the most part is ignored in the XF551, except during formatting. At that time its use apparently relates to the location of the beginning sector of each track (recall hard sector floppy disks).**

**During reading and writing, the index hole is ignored. This can be simply verified by XF551 owners by covering the hole with tape on a formatted disk. Revolution speed remains constant despite the hole being covered. The XF551 can read and write on side 2 of a disk if already formatted, but can't format side 2 if it can't see the index hole when the disk is flipped. If careful not to scratch the disk, you can use a hole punch (twice) to provide the extra index hole opening through both sides of the black plastic jacket (but not through the physical disk inside). If you don't know what I mean, check a recent PAGE 6 disk which has two index hole openings, the XF551 can format those on either side with no problem! (I hope PAGE 6 will let XF551 owners know where to get them).**

**I have no experience with the US doubler so can't really comment regarding it's double density sector skew problems on the XF551. However, it occurs to me that, most probably no commercial software exists that would use that format. Any disk you might receive in that format is therefore unlikely to be copy protected. For use on the XF551 simply ensure that the US doubler formats disks with sector skew off or else copy to an XF551 sector skew formatted disk.**

**Replacing the 5.25" drive mechanism with a 3.5" mechanism on the XF551 is not as simple a stated. On both mechanisms, most pins have the same assigned function, except for pins 32 and 31. On the 5.25" mechanism they are "Side one select" and its "Ground return pin" respectively, but on the 3.5" mechanism they are "Spare". The 5.25" mechanism is 40 tracks per side but the 3.5" mechanism is 80 tracks per side. The XF551 interface can only handle 80 tracks total, to handle the 3.5" mechanism the interface needs to be modified. There have been at least two different modifications available in the U.S.A for that purpose. Apparently they require changing the ROM and a 34 pin plug as well as the drive mechanism.**

**Finally, let me just say that the XF551 is an excellent drive for the serious 8-bit enthusiast, as is the 1050. I use Superdos 5.1 (quite Dos 2.5 compatible yet handles single/ enhanced/ double and 2 sided densities in standard or fast baud rate) which allows the XF551 to really fly. There's been a lot of lingering misinformation spread about the XF551 which has hurt all 8-bit users. I hope the XF551 "haters" are happy now that it is no longer manufactured and nor will any other 8-bit drive be. I wish I had the foresight to purchase several while they were still available.**

**John Stecyk,**
Hawthorn, Australia

*Many thanks for you comments, John. Most of the image problems of the XF551 stem from Atari's (usual) lack of documentation and explanation of the workings of the drive. The 1050 just came out of the box, was plugged in and, with a quick look at the manual, away you went. With the XF551, all the promises of double sided, double density storage didn't appear to be there, at least for those who did not know enough to find these features. For the beginner an advanced disk drive with inadequate documentation is a nightmare.*

*The only point which I would take issue with is the question of the drive speed and its effect on copy protection. The speed difference is not 'insignificant' on certain software. The UK company Databyte developed one of the most sophisticated copy protection techniques some years ago for the word processor Superscript. Now this was a great program but if your 1050 or 810 was running just slightly out of speed (by 3 or more rpm) then it wouldn't load - a real pain. Databyte subsequently introduced this copy protection on their own games so there are a number of commercial programs that certainly won't run at 300 rpm. Another problem is the myth of having to flip disks. There is absolutely no need to go to the lengths of cutting notches and index holes, if the drive is properly configured it will automatically write to both sides of the disk.*

*The XF551 is a good drive, perhaps more so for those who understand their systems fully. Beginners might not find it so easy to use all of the features but that is only because its lacks documentation. If you find one, buy it anyway, you won't go far wrong.*

## TAPE PROBLEMS

**I own a 130XE and XC12 tape recorder. When I saved a program in LISTed format so that I could combine it with other programs I tried to load it with ENTER "C:" but it would not load the program. It gave the error 143 but the cables are good and properly connected. Could you HELP?**

**E. Manning**
Nievw-Dijk, Holland

*This error is usually due to a poor quality tape. Sadly there is nothing that you can do but start again. We did publish a cassette verify routine a while ago which allowed you to test whether a save had been successful before wiping out your program and it might be wise to use a utility such as this.*

# APX

## some early user written software now available again

## reviewed by Paul Rixon

So, here we are in the closing months of 1991 - some twelve years after the Atari 400 first emerged onto the computing scene, and almost nine years after the first edition of PAGE 6! Few micros, and even fewer computer magazines have survived as long. Probably none can claim to have commanded such an enthusiastic following.

A recent report on the 1991 Atari Shareholder's meeting by Atari Interface Magazine reveals that the XE is still in production. It is currently selling in South America, Eastern Europe and the Middle East. In the States, the 8-bit Atari is still supported by a small number of commercial organisations, such as Reevesoft - publishers of the Diamond GOS system reviewed in NAU #44 - and a nationwide network of user groups. Here in the UK there continues to be a trickle of new software releases from the budget houses of Zeppelin, Hi Tec and others. However, the majority of programs currently available originate from those 'good ol' days' of the last decade - many having re-emerged at drastically reduced prices.

Gralin International, who have close ties with the Bournemouth and Poole User Group, offer many such 'oldies' in their catalogues. Recently, they announced the availability of APX software in a series of specially-bundled collections. Newer Atarians may not recognise the abbreviation APX, but it was once a key component of Atari's Stateside software support. The letters stood for Atari Program Exchange and the concept was an attempt to involve users in supporting their own machines. The basic idea was that if someone wrote a piece of software and thought it might be of interest to other users, they would send it to APX. A panel of reviewers would then decide whether or not it was worthy of inclusion in the APX catalogue, which was itself widely distributed to other Atari owners. By keeping costs to a minimum - simple packaging, 'standard' user manuals (luxurious by modern standards!) and without spending hours of testing and development time -Atari could market APX software at a much lower price than was otherwise viable. The only catch was that Atari would not guarantee the programs in any way - they were offered on an 'is as' basis with copious disclaimers accompanying the manuals! Buying software from APX was a gamble but it could sometimes pay off. Some programs became so popular that they were subsequently released into the regular Atari line-up - authors had the incentive of a share of annual prize money worth a hundred thousand dollars!

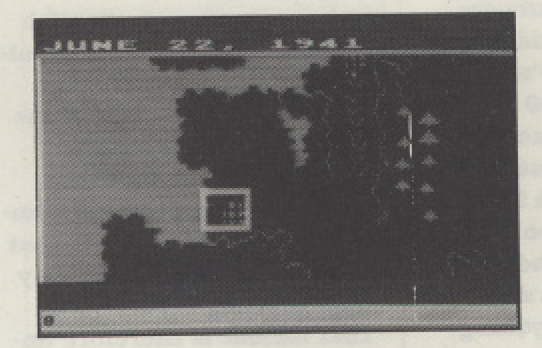
What sort of programs were found in the APX? The answer is, simply, almost any and every kind! There were games, utilities, educational programs, music and specialist applications. Let's take a closer look at some of the best entertainment titles released by the APX.

**EASTERN FRONT 1941** was written by Chris Crawford (of De Re Atari fame) and published by APX in 1982. It's a simulation of Operation Barbarossa, the German invasion of Russia during World War II. The game is relatively complex and re-creates the conditions of the campaign including terrain, seasons and the various types of military units involved. Each 'turn' covers one week in history in which the player must asses the strategic information displayed and decide on the movement orders for his troops. The smooth multi-way scrolling graphics were considered innovative at the time of release and this helped Eastern Front earn the respect of many war-game fanatics. It was later marketed as a full-priced package and is probably the best-known war-game to date.

**PHOBOS** is the little known sequel to Caverns Of Mars, a 'classic' vertical scroller that admittedly appears rather poor by today's standards but was once thought to be rather good! Phobos runs along similar lines to its predecessor - the task is to manage a space craft rapidly descending through a series of increasingly hazardous caverns. You must dodge enemy missiles, obtain fuel for when it's needed later and carefully negotiate the winding passages. There are four skill options, and a maximum sixteen levels of defence. The game is addictive, and the graphics aren't too bad at all!

**QUARXON** earned author Scott Ludwig of Hawaii first prize in the autumn 1982 APX contest. The plot sets you in control of a laser-equipped spaceship battling to save your planet from an enemy attack. The screen is split vertically into two portions - one for each player. A central barrier separates two opposing space craft, and a nicely shaded border defends a line of Droids on either side. The objective is to fire your laser through randomly occurring openings in the barrier to break the protective shield and destroy your opponent's Droids. Of course, the enemy - who may be human or silicon - is determined to do the same to you! Considering the age of Quarxon, the graphics and sound are a lot better than you would expect!

Clearly, the quality of APX software differs enormously from one program to another - the games mentioned above are the best amongst those I received from Gralin, but the omission of a title shouldn't be regarded as a negative indication. Next issue we will continue to explore the APX, with a focus on utilities and applications.




*EASTERN FRONT - one of the all time classics that was first released in the Atari Program eXchange*

## HOW TO OBTAIN APX SOFTWARE

*The APX software featured above was supplied by Gralin International, 11 Shillito Road, Parkstone, Poole, Dorset BH12 2BN. The exact composition of cassette and disk collections is subject to change and full details of current availability and prices should be sought from Gralin.*

# EIGHT BITS OF HISTORY

## OR, THE WAY IT MIGHT HAVE BEEN

***Ed Hall charts the history of personal computers as it relates to Atari.***

***Pure Science Fiction?***

One of the standard plot devices in science fiction is the parallel universe, a goofy concept involving the creation of a new world every time someone sneezes, or chooses Pepsi instead of Coke. Thus, somewhere there is an Earth where dinosaurs are still running around, and John F. Kennedy was not assassinated, and I am typing out this article on my trusty 8-bit Syzygy.

The soap opera world of personal computing is rich in the field of alternate universes. Let's look at some of them, as they relate to the Atari.

## ATARI BUYS OUT APPLE!

In 1972 when Nolan Bushnell founded Atari, the name he wanted to use for his company was "Syzygy," but it had already been claimed by a California roofing company. (Whew!) "Atari" was a second choice.

One day early in 1974 a long-haired, bare-footed teenager presented himself at Atari and demanded a job. He was so determined that the company figured it was a case of hire him or call the cops.

The kid's name was Steve Jobs and, as so often happened in his life, he got his own way. He became employee no. 54, and worked off and on for Atari over the next two years. Though he left for good in 1976 to begin a company called Apple Computer, his relationship with Atari did not end there. Whenever he needed help, whether in the form of parts, personnel, or advice, he often went to Atari first.

Atari at this time was manufacturing arcade games, and riding the crest of the phenomenal success of Pong. Nolan Bushnell had turned a $500 investment in 1972 into earnings of $3 million the following year. An unconventional man, an engineer filled with the entrepreneurial spirit, he was known around Silicon Valley as King Pong. He often held brainstorming sessions in a hot tub installed in Atari's engineering building. In those days new ideas and concepts were Bushnell's stock in trade, for within a year of Pong's release competition had already become fierce. The videogame industry, and then the personal computer industry, were so new, so volatile, that companies balanced on a knife-edge between bankruptcy and fantastic riches. It was an industry made for someone as mercurial and eccentric as Nolan Bushnell. In Steve Jobs he seemed to recognize a kindred spirit. Once, when Jobs was on the verge of being fired, it was Bushnell who stepped in and rescued him. "If you don't want him," he said, "I do."

Even in a company as unconventional as Atari, Jobs stood out as an oddity. In the two year-period he worked there, he took time out for primal scream therapy and visits to a commune called the All-One Farm. He returned from a pilgrimage to India with his head shaved and wearing saffron robes. He became a fruitarian, following a diet to reduce the formation of bodily mucus. It was a regime which he believed made bathing unnecessary.

Jobs's arrogance quickly alienated himself from his co-workers at Atari, and to keep the peace he was re-assigned to work at night. Sometimes he'd bring along his buddy Steve Wozniak, who played games for free on the assembly line.

One day Bushnell came up with a new idea for a game and challenged Jobs to build it. For the next few nights, when Woz showed up to play games, Jobs got him to work on the design while he himself did the wire-wrapping. The game, called "Breakout," was a logical extension of Pong, and became an enduring classic whose most recent incarnation is "Arkanoid."

Bushnell offered Woz a job, but Woz was already happily employed at Hewlett-Packard. Like Jobs, he was a college

drop-out and electronics junkie, but his real love was computers. This interest became supercharged in January 1975 when the first personal computer, the Altair, became available. It was a kit needing hours of careful soldering to assemble. It came with less than 1K of memory; information had to be entered using a row of toggle switches; and its display consisted of a row of flashing lights. Yet within a month the tiny company selling the kits was deluged with 4000 orders.

Woz began building a computer of his own design, using parts scavenged from Atari and Hewlett-Packard. Though he was doing it for fun, Jobs thought it might have commercial possibilities. Others were sceptical because Woz had decided to go with a brand-new microprocessor, the 6502, since it was significantly cheaper than the Intel 8080, which was used in the Altair and other early machines.

In fact, it turned out to be one of many inspired choices made by the two Steves. The 6502 family of chips became a stalwart of the personal computer industry, showing up not only in the Apple II, but also Commodore's VIC-20 and 64, and Atari's own 800/XL/XE line.

Undeterred by naysayers, Jobs convinced Woz to form a company which would produce and sell the boards that Woz had designed. The name they decided upon - Apple Computer, Inc. - reflected Jobs's fruitarian leanings. It also put them ahead of Atari in the phone book.

It wasn't the first time the two had joined together in a business venture. Back in 1972, when Jobs was still in high school, they had built and hawked another Woz design - blue boxes - devices used to trick the phone company into allowing free long-distance calls. This time the business was legitimate, though still a sideline. Neither of them planned on giving up their daytime employment at Atari and Hewlett-Packard.

## BACK TO THE GARAGE

Jobs immediately began recruiting people from Atari to help bring out the new computer. Ron Wayne become the third partner in Apple Computer, Inc.; he designed the first company logo and worked on the technical manual. Howard Cantin (who had laid out the original Pong board) did the schematics. Later, another recruit was Rod Holt, who left Atari and became a key Apple engineer.

Working out of the Jobs's family garage, the tiny company produced a small quantity of Apple I's. By today's standards, it wasn't much of a computer. It had no case, no keyboard, and no power supply. It was simply a circuit board whose display output was limited to black-and-white. Jobs and Woz hoped to make a modest profit, and were astounded when they received a $25,000 order. Jobs scrambled to raise enough credit to fill the order.

It was a heady, exciting, nerve-wracking time. Jobs threw all his energy into the company while Woz was busy making improvements to his original design. Topping the list was the capability to display in colour, so Woz could play Breakout on his own computer. By the fall of 1976 he had a prototype of the Apple II ready for the first ever personal computer festival. But bringing out the Apple II involved a significant escalation of risk. First of it was going to be a complete unit (case, keyboard, power supply) which meant a significantly higher production cost.

Secondly, new companies and new computers were popping up as people scented the money that could be made. Most of the early companies offering personal computers had hobbyist origins. They began nervously looking over their shoulders, anticipating the arrival of established companies like Tandy and Texas Instruments, against whom they felt it would be impossible to compete.

All three Apple partners felt the pressure. Ron Wayne got cold feet and backed out of the company. Woz offered his new machine, the Apple II, to Hewlett-Packard, but his employers politely declined. Even Jobs was ready to sell. He offered the Apple II to Commodore, but they thought the price was too steep. He also offered it to Atari, but made the mistake of putting his bare feet on the desk of company president, Joe Keenan, and was immediately ordered out of the office. At the time Atari was stretched too thin to get into computers anyway. The VCS game system was under development and the company desperately needed capital. It was for this reason that Nolan Bushnell sold controlling interest to Warner Communications.

## ENTER THE TWO MIKES

Bushnell did however give Jobs a tip that eventually brought Mike Markkula and Mike Scott to Apple Computer. Together the two Mikes supplied something the two Steves did not have - experience in running a company - and it was the final component necessary to make Apple Computer a success.

The Apple II was introduced in 1977 (the same year as the Commodore PET and the Radio Shack TRS-80 Model I) and became an instant success. By 1980 Apple was the industry leader with sales of $117 million, over 1000 employees, and several new computers under development. When Apple finally went public that year, its market value became greater than that of Ford Motor Company, and Steve Jobs was suddenly worth $264 million.

But as important as 1980 was in the fairy-tale story of Apple, the previous year was perhaps even more significant, for in 1979 Steve Jobs swung a deal with Xerox, which gained him admittance to the Palo Alto Research Centre (PARC), a sort of ivory tower of the computer world, into which Xerox had pumped $100 million towards long-term research. There Jobs and others from Apple discovered Smalltalk, a visually oriented programming language designed by computer visionary Alan Kay. Smalltalk used windows, icons, pull-down menus, and a mouse. Jobs was so impressed he incorporated all of these features into the Lisa and the Macintosh, both of which were already under development at Apple. Though Xerox used similar features in its own computer, the Star, it was not a success when it debuted in 1981. It took the Mac, which came out three years later, to popularize these features. Eventually a graphics-based operating system using the desktop metaphor would be imitated not only by Atari and Commodore, but also by IBM.

The Macintosh became a personal crusade for Jobs, and opened a deep rift in the company. He drove the Mac team extraordinarily hard and demanded total commitment from them. He wanted people still imbued with the hacker spirit, people willing to go the limit to produce an "insanely great" product, a computer which would "make a dent in the universe." He didn't want the bureaucrats and traditional engineers who had fouled up the Apple III and the Lisa. He wanted renegades, people who got things right through sheer brilliance, not by endless meetings and committee-work. Consequently (to screen out people with the "wrong stuff") job interviews were rather strange. "How many times have you dropped acid?" and "When did you lose your virginity?" were two standard questions. The final test involved playing a game of Defender with Burrell Smith, a self-taught engineer who was designing the main circuit board for the Macintosh. If you

didn't play a hot game of Defender, you weren't likely to fit in.

Jobs was still visiting Atari in the early 1980s, even though Nolan Bushnell was no longer around. Every few months he would show up to have lunch with Alan Kay in Atari's executive dining room. Kay had finally tired of PARC and joined Atari as its chief scientist. There he was urged to build "fantasy amplifiers." One of the projects he was working on was an "interactive movie game"; another was an encyclopedia in a Smalltalk type environment.

Finally, in 1984, with Atari on the skids, Jobs finally convinced Kay to join Apple. Kay immediately earned Jobs's displeasure by writing a memo which compared the Macintosh to a Honda with a one-quart gas tank.

The following year was Jobs's last at Apple. The disappointing sales of the Macintosh threw the company into upheaval, and Jobs was finally ousted by another man he had hired, the man from Pepsi, John Sculley.

One can't help wondering how good a game of Defender John Sculley plays.

## IBM BUYS ATARI!

Atari not only started a whole new industry in 1972, it helped launch a revolution. First of all, Atari's video games subtly altered the relationship between people and their television sets by changing people's roles from a passive one to an active one. Then, by infiltrating so many homes (there was a videogame in 17% of American households by 1982), it prepared the way for a far more important device, the personal computer.

If the personal computer was revolutionary, then IBM came to symbolize all that was being rebelled against. "Personal" computers were designed by people who wanted their own machines, electronic hippies who didn't want to genuflect before drones in white lab coats to get computer time. For them, IBM was the enemy - rich, powerful and conservative - a company of blue-suited clones. IBM was the Establishment and its product was impersonal computers.

In their early years companies like Apple and Atari could not have been farther in spirit from IBM. One day when Apple was readying for a visit from Bank of America officials, Mike Scott had to get a programmer to quickly expunge the low-score message "Pure Shit" from the Apple version of Breakout. And at Atari, when a visiting rep from Sears viewed a program he found bizarre and wondered aloud what drugs the designer had been on, someone stepped forward with a lighted joint to show him.

But the wild and woolly days began to change as corporate America took notice of the money these firms were generating. Warner Communications, a huge entertainment conglomerate with holdings in the film and record industry, took over Atari in 1976. It sank a lot of money into the VCS game unit and brought it to market in 1977. Even then there was a lot of competition and Atari may not have survived without the backing of its parent company. But in 1979 Warner's patience paid off when Space Invaders arrived from Japan and touched off a worldwide videogame craze.

By then Nolan Bushnell was gone. He had hung around as chairman for a couple of years after Warner took over, but his interest faded quickly. Early in 1979 his position was filled by Ray Kassar, one of the first of a new breed of executives to arrive in the upper echelons of the personal computer industry. Unlike Scott and Markkula at Apple, he had no prior knowledge of, experience with, or interest in computers. His background was not in engineering, but in textiles - underwear and rugs, to be precise. He cut out tub parties, cranked up security and established dress codes. "Marketing" became the new battle cry.

The year that Kassar took over as chairman of Atari was significant not only for the arrival of Space Invaders, but also for the debut of Atari's own computers. The Apple success story was a powerful reason to enter the market, but where Breakout had exerted a subtle influence upon Woz and the Apple II, videogames played a more prominent role in the development of the Atari computers. Since games were already an important segment of computer software, it was clear that any computer produced by Atari, the acknowledged leader in videogames, would be a formidable game machine. In fact, Atari's computers evolved out of its home videogame unit, the VCS (Video Computer System), with Steve Mayer and Joe Decuir being principal designers of both systems.

Powered by the same microprocessor as the Apple II, the Atari computers used additional custom chips which made them unrivalled in the home computer market for sound and graphics. Jay Miner designed the ANTIC and CTIA chips, while Doug Neubauer did the POKEY chip. Neubauer also wrote Star Raiders, the game which showcased the Atari's advanced graphics so well that many people bought the computer just to play the game.

In addition to their game-playing ability, the design of these new computers reflected Atari's mentality in another way. Woz had given the Apple II eight slots which were specifically designed to make it easy to hook up additional circuit boards. The Atari computers on the other hand were basically closed systems, having only a few slots intended for memory expansion. The Apple II's design attracted numerous companies which became rich making peripherals and add-ons. The availability of such items played an important role in extending the life of the Apple II, and was just another element in the synergy of success which the Apple II enjoyed.

Despite this shortcoming, Atari's computers initially sold well and soon carved out a respectable share of the home market. Nevertheless it was VCS sales which accounted for the major portion of Atari's revenues. In 1980 Apple products may have been selling like crazy ($117 million in sales), but Atari's volume of business was even greater ($415 million). In 6 months Warner stock shot up 35%. Soon Atari was accounting for well over half of Warner's operating profit, including many times more than its record and film divisions.

## THE $2 BILLION TURNOVER!

But even as Atari reaped fantastic profits, it was already sowing seeds which would contribute to its own downfall. First of all, success made the new Atari over-confident; it was making so much money ($2 billion in sales in 1982) that it came to believe it thoroughly understood the home computer and videogame marketplace. In fact, no one did. It was a time when a new company like Osborne Computer could go from multi-million dollar sales one year to bankruptcy the next.

Even larger companies like Apple and Atari weren't impervious to financial trouble, as they were soon to discover. One reason was simply a factor of their explosive growth - they became increasingly bureaucratic and had trouble reacting quickly enough to the rapidly changing demands of the marketplace. However, both Apple and Atari were generating so much revenue that they had a larger margin of error than smaller companies. Apple II sales carried the company through

the twin debacles of Apple III and the Lisa, as well as the long development period of the Macintosh. At Atari, the company continued to reap vast profits despite its backward policy toward software - a policy directly attributable to Ray Kassar's ignorance of the product he was selling. For the new Atari, computers and videogames were simply another consumer product whose success was primarily dependant upon marketing.

## EXIT PROGRAMMERS

Atari had decided that the formula for success was in buying the rights to games like PacMan, which had already proved successful in the arcades, or spinoffs from movies like "ET" and "Raiders of the Lost Ark." Atari spent millions acquiring such rights, then fiercely protected them through lawsuits.

Consequently Atari downplayed the importance of its programmers. After all, it was marketing, not programming, which had brought in the money. At a time when other companies were treating their programmers like rock stars and paying them sizeable sums in royalties, Atari refused to acknowledge their names and in many cases, as with Star Raiders, paid no royalties at all. When some of them complained, Kassar claimed they were no more important than designers of towels. As a result, Atari lost a number of gifted programmers, who left to start up firms like Activision and Imagic, companies whose software sales soon began to bite into Atari's profits. In 1980, Activision's first year of business, the company grossed nearly $70 million.

Kassar also tried to keep the workings of Atari's new computers a closely guarded secret. To him, such a decision made sense in a highly competitive market. This decision, however, was clearly a mistake in the home computer market, which had a tradition of openness and sharing. More importantly, it simply retarded the development of software for Atari computers, and in one case, so angered a brilliant programmer named John Harris, that he refused to sell Atari his state-of-the-art game "Jawbreaker."

Despite the impressive growth of the home computer market, corporate America was slow to take seriously the fledgling industry. After all, it had not been validated by IBM. But the spiralling profits of firms like Apple and Atari were blood in the water for the corporate leviathan. Soon a Big Blue fin began to circle the upstart firms of Silicon Valley.

## BIG BLUE APPROACHES

When IBM finally decided to get into personal computers, they first considered buying a firm already in the market, thus leapfrogging the costly delays involved in developing a computer from scratch. The group that was put together to explore this option recommended that IBM buy out Atari. The proposal was brought to a dead halt, however, because IBM chairman, Frank Carey, wanted only "the best," and according to the advice he was given, that meant Apple, not Atari. Since Apple was sure to resist a take-over attempt, IBM's only alternative was to bring out their own personal computer. They did so in 1981, after a development period of only a year.

It was an amazing feat for a company as elephantine as IBM. Perhaps equally remarkable was the open architecture that it employed, making it closer in spirit to the Apple II than the Atari 800. Such openness was distinctly un-IBM-like.

While the PC was under development, IBM approached Bill Gates, another computer whizkid and co-founder of Microsoft. At the time Gates was working on a version of Microsoft Basic for the Atari 400/800, and had a meeting with Ray Kassar scheduled the next day. Hurriedly Gates cancelled that meeting so that he could receive IBM. Before any discussion could begin, however, Gates was obliged to sign a document which pledged his secrecy on matters relating to IBM, but gave IBM free use of any secrets Gates himself might inadvertently reveal. Despite this lopsided agreement, the meeting turned out to be a very profitable one for Gates, as it ultimately led to his company's development of MS-DOS, the operating system for IBM's new PC.

## COMMODORE BUYS APPLE!

The success story of Jack Tramiel, founder of Commodore Business Machines, is even more remarkable than that of Steve Jobs. Born in Poland in 1928, he spent a major portion of his teenage years in the Nazi death camps. For him there was no need of a pilgrimage to India to give meaning to his life, and his diet while at Auschwitz was not an experiment. He became a survivor, and this experience toughened him for survival in the business world, and especially in the personal computer market, where the pressure can be brutal. Michael Tomczyk, a former Tramiel aid, observed that working at Commodore, or any other computer company in those days, was like being in a real-life videogame game - one slip, one false move, and you're dead. At Apple, Steve Jobs frequently wept, while Tramiel, whose personal battle cry became, "Business is war," was once physically attacked by an employee who broke under the strain.

Apart from the difference in their ages and backgrounds, there are many interesting similarities between Jack Tramiel and Steve Jobs. Both are equipped with powerful personalities, both employ confrontation as a management tool, and both are able to infuse in others their own compelling vision of the future. So powerful was this in Jobs that co-workers at Apple called him "the reality-distortion field." At Commodore, Tramiel preached a brand of hard-nosed business that became known as "The Religion." Though his rule was paternalistic and autocratic, he was able to instill great loyalty among his top workers.

After coming to America, Tramiel started a typewriter repair shop and soon branched out into adding machines. When the first microprocessors were developed in the early 1970s by Intel and Texas Instruments for use in calculators, it seemed a natural product for his company to get into. Commodore began selling a line of calculators based on a Texas Instruments chip. When Texas Instruments itself entered the market with its own calculators, it crushed most of its competitors and Commodore nearly went under.

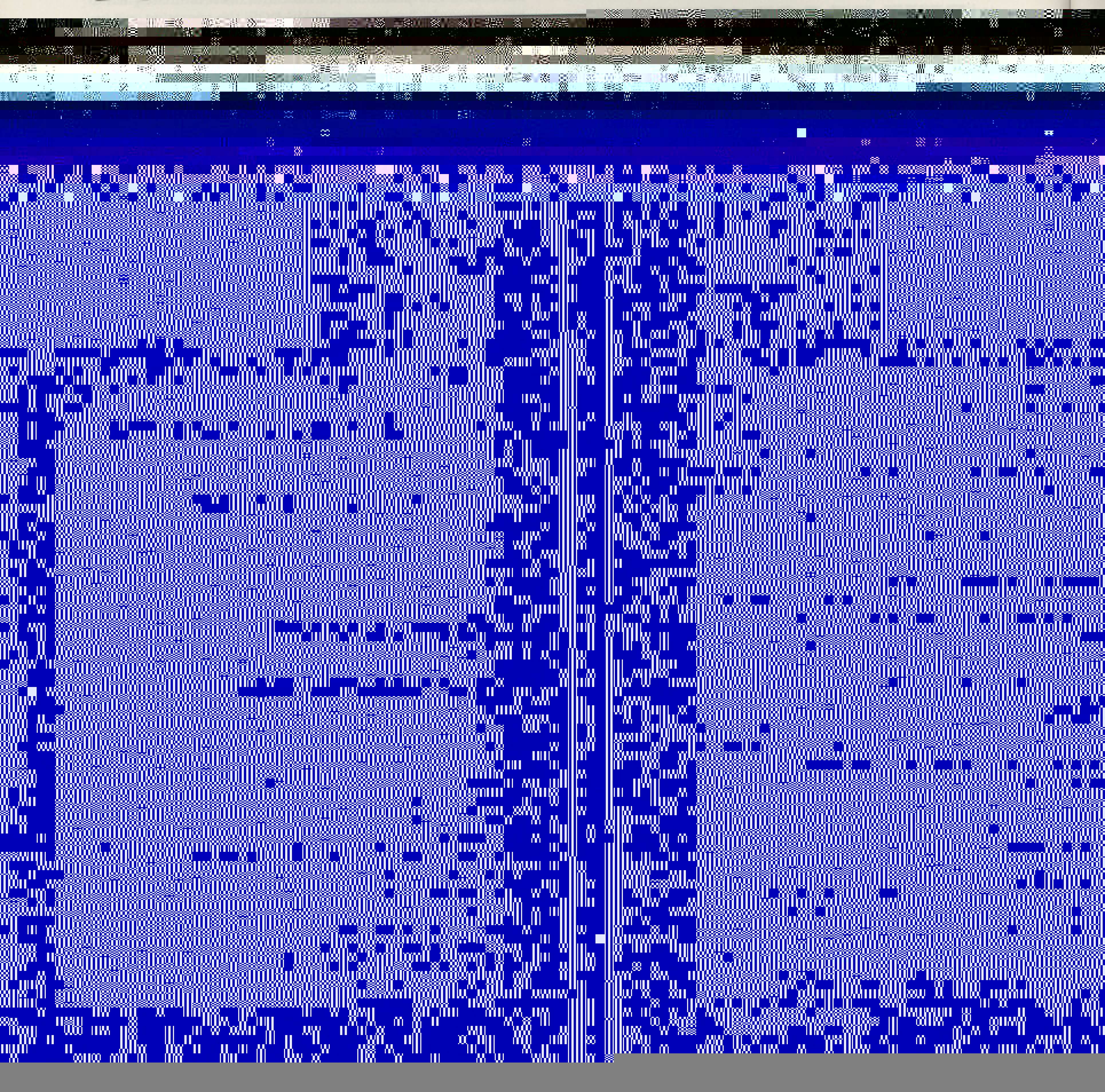
***NEXT ISSUE ...***

***WILL JACK TRAMIEL SURVIVE?***

***WILL ATARI SURVIVE?***

***MORE ASTOUNDING STORIES***

# BAT PACK



```
EI 1 REM ********************************
QC 2 REM *            BAT PACK          *
RQ 3 REM *               by             *
UL 4 REM *          Bill Halsall        *
EC 5 REM * ---------------------------- *
BF 6 REM * NEW ATARI USER  - OCT. 1991 *
EO 7 REM ********************************
AY 10 REM
NA 14 REM  BOOT TAPE/OBJECT CODE FILE
           MAKER - BASED ON HEXSAVER
                 BY NICK HIGGS
BK 16 REM
PD 20 DIM LINE$(96),A$(8192):LINE=990:CNT
   =-48:TRAP 100:GOSUB 200
LM 30 A$(1)="0":A$(8192)="0":A$(2)=A$
RG 40 LINE=LINE+10:CNT=CNT+48:READ LINE$,
   CHKSUM:? "CHECKING LINE ";LINE
IH 50 CHK=USR(1536,ADR(LINE$),ADR(A$)+CNT
   )
QI 60 GOSUB 300:GOTO 40
VH 100 IF PEEK(195)<>6 THEN ? "ERROR ";PE
   EK(195);CHR$(253):END
AL 110 ? "WORKED OKAY":TRAP 100
RX 120 ? "(D)ISK OR (T)APE":GOSUB 180:IF
   K=68 THEN 140
AK 130 ? "READY CASSETTE AND PRESS RETURN
   ":OPEN #1,8,128,"C:":GOTO 160
KV 140 ? "READY DISK AND PRESS RETURN":GO
   SUB 180:IF K<>155 THEN 140
JI 150 OPEN #1,8,0,"D:BATPACK.OBJ"
XQ 160 ? #1;A$(1,4480):CLOSE #1:END
ZH 180 CLOSE #1:OPEN #1,4,0,"K:":GET #1,K
   :CLOSE #1:RETURN
MQ 200 FOR A=1536 TO 1658:READ D:POKE A,D
   :NEXT A:RETURN
IX 210 DATA 216,104,104,133,204,104,133,2
   03,104,133,206,104,133,205,169,0,141,1
   27,6,141
IZ 220 DATA 128,6,160,255,140,125,6,140,1
   26,6,173,126,6,201,47,208,11,173,127,6
QG 230 DATA 133,212,173,128,6,133,213,96,
   172,125,6,200,140,125,6,177,203,32,111
   ,6
IS 240 DATA 10,10,10,10,141,123,6,172,125
   ,6,200,140,125,6,177,203,32,111,6,24
ZH 250 DATA 109,123,6,172,126,6,200,140,1
   26,6,145,205,24,109,127,6,141,127,6,17
   3
MY 260 DATA 128,6,105,0,141,128,6,76,30,6
   ,96,201,58,144,4,56,233,55,96,56,233,4
   8,96
YL 300 DLNE=PEEK(184)*256+PEEK(183)
RV 310 IF LINE<>DLNE THEN ? "LINE ";STR$(
   LINE);" MISSING!":END
QZ 320 IF CHKSUM<>CHK THEN ? "ERROR IN DA
   TA AT LINE ";STR$(LINE):END
ZF 330 RETURN
QG 1000 DATA 002300202720A9008D2F02A93C8D
   02D3A9008DE702850EA9388DE802850FA92885
   0AA920850B18604CB42F0000000000,3638
RF 1010 DATA 0000000000008080F03000300008
   88FCF0C0F0080008080F0300030000000C0F0F
   373F000000C0C0C070F0FEFFFFF0C0,3562
TB 1020 DATA C00000FCFCFC3C0C0C0000C0C0F0
   FCFFFFF73F0C0C3CFCFCFC7CF03F0E03000000
   0000F0C000000000000002080A1555,4570
VQ 1030 DATA 4455448020A05555455545554455
   44554455005545554555455400020A2528A415
   92A280A06848AAA88AAAAAAA2A282A,4180
NY 1040 DATA 0A0000AAE2A8A0A0800000FFFFF5
   FAFAFAFFFFFCFFDDEEEEEEFFFFFF7F5F7F7F7FF
   FF3FF7D777F7F7FFFFFFFBFBBAEBBAE,9548
UX 1050 DATA BBAEAAFFBBEFBBEFBBEFAA000000
   0000330C330000D511040000000C0C0C0C0C0C
   0C0C0C0C1504040400004411440000,2888
PF 1060 DATA 000000441100000000000000441144
   00000000004411441000000000004411441100000
   0000441144114410000044114411144,1069
MI 1070 DATA 1104004411441144114410000000
   00000044110000000000000011000000000000
```

continued ☞

## TYPING IT IN

Cassette and disk users should type in Listing 1, SAVE or CSAVE a copy, then RUN the program. The program will check each line of data and inform you of any errors. Correct any errors and RUN the program again until all errors are eliminated. When this is done answer the cassette/disk questions accordingly to create a boot tape or binary disk file.

Cassette users should load the boot tape created by firstly removing all cartridges and then turning on the computer while holding down the START key (XL and XE owners should hold down OPTION as well). Press RETURN and the tape will load and run automatically.

Disk users should clear Listing 1 from memory after saving and running it as above by typing NEW and pressing RETURN. Next, type in Listing 2 and save it on the same disk as the binary file created by Listing 1. RUN the Listing 2 program with the disk in the drive and the game will load and run automatically.-

# by Bill Halsall

*We are pleased to welcome back Bill Halsall who has written many excellent games for us in the past. Bill is still keen to tackle new games but his main problem is a lack of ideas for game plots. This one was suggested by a friend of his daughter who was heavily into the film The Lost Boys.*

*There must be many readers who have good ideas for game plots but who lack the programming knowledge to create the game, so how about some suggestions that might spur Bill into writing a few more games for you? Take a look at Bill's previous games and see if you can come up with a plot or two. Send your ideas to PAGE 6 at the normal address, making sure they are clearly marked for Bill Halsall and we will send them on. Who knows, one day your game plot might appear as a brand new listing in New Atari User!*

# BAT PACK

```
   441100000000001044110000000000,648
HS 1080 DATA 11441100000001044114411000004
   1144114411001044114411441144114411
   441144114411FFFFFC3C000000FF00,2337
LQ 1090 DATA 00000000C030FF30C000001C3E1D
   7F5C0000001C3E5C7F1D0000001C2A1D7F5C00
   00001C2A5C7F1D0000001C3E1C1C1C,2221
JZ 1100 DATA 1C00001C3E1D7F5C0000001C3E1C
   1C1C1C00001C3E5C7F1D000000000001D41401C
   141000005C41011C140400001D4140,1504
AW 1110 DATA 1C141000085C41011C140400001C
   00080808180000 1D41403C2E6200001C000808
   080C00005C41011E3A232221340030,1232
RF 1120 DATA 21232B000000227900022696C6C00
   28616C73616C6C00666F72002E657700217461
   7269003573657200000000A9008D2F,3092
UL 1130 DATA 02A9308D07D4A200BD2B209D0034
   BD2B219D0035A9009D1031E8D0ECA9028D1DD0
   A9218D6F02A9008D08D2A9038D0FD2,4827
MT 1140 DATA A9EA8D3002A9228D3102A208BDD4
   229DC002CA10F7A92A8D2F02A03EA223A90720
   5CE4A9C08D0ED4A207BD3B229D1033,5161
WF 1150 DATA CA10F760061A0000BA1C0826A048
   A9088D18D0A9348D09D46840304200334243 22
   901044013A44013B44013C44013D44,3460
GN 1160 DATA 013E44013F4401404401414401 42
   4401434401444401454401464401474401 4844
   014944014A44014B44014C44014D44,2216
TF 1170 DATA 014E44014F44015044015141EA22
   20B62420BD2E20CC2E20E92EA9DD8D0002A922
   8D01024C62E4A93785CCA90085CBA0,4477
EC 1180 DATA 00A92E91CBC8D0F9E6CCA5CCC968
   D0EFA93885CCA013AD0AD2290718691E91CBC8
   C0ECD0F1A204E6CCA900A01391CBC8,7037
TM 1190 DATA C0ECD0F9CAD0F0E6CCA014AD0AD2
   290718692691CBC8C0ECD0F1E6CCA5CCC968D0
   C2A90885B0A20086CB86CDBD942485,7522
QC 1200 DATA CC38E90185CEAD0AD238E93890F8
   6919A8A90091CB91CDC891CB91CDC891CB91CD
   C891CB91CDE8E008D0D1C6B0A5B0D0,7626
DY 1210 DATA C5A92EA2009D0037E8D0FAA91885
   B0A200AD0AD229031865B09D5033AD0AD22907
   A8B994249D6033E8A5B018691085B0,5475
ER 1220 DATA C9E8D0DDA200BD603385CC186905
   85CEBD503385CB85CDA000205724C00CD0F9E6
   CCC6CCEA000205724A00A205724E8E0,6074
MR 1230 DATA 0DD0D320662460A91891CB91CDC8
   A91991CB91CDC860A200AD0AD22907F0F9387D
   503385CB9DAE31AD0AD22903F0F918,6047
KH 1240 DATA 7D60339DBD3185CCA000A94191CB
   E8E00DD0D560383E444A50565C62A200A9379D
   7033E8E048D0F8A200A03898994433,5840
GK 1250 DATA C8C068D0F760A5B105B2F00FA5B6
   38E913A2459DF422CACACA10F8A5B305B4F012
   A000A6B7BD393399F522E8C8C8C8C0,7067
UX 1260 DATA 48D0F2A90085B185B285B385B420
   592CAD792EF003CE792E60A9008DB025AD7802
   2901D003202725AD78022902D00320,4914
WK 1270 DATA 3E25AD78022904D003205525AD78
   022908D003206C2560A9008D8325C6B720B125
   A5B8F003E6B760E6B420842560A910,4730
OW 1280 DATA 8D8325E6B720B125A5B8F003C6B7
   60E6B320842560A9208D8325C6B620B125A5B8
   F003E6B660E6B220842560A9308D83,6173
HK 1290 DATA 25E6B620B125A5B8F003C6BF60E6
   B120842560000ADB025D026AD83251865B5AAA0
   00BDBB21993C32BDFB2199BC32E8C8,6044
ZW 1300 DATA C008D0EEA5B5490885B5A9018DB0
   256000A5B785CCA5B685CB20DE25A20086B8B5
   B9C92EF0154AC90CF0101869014A4A,5841
OS 1310 DATA 4AC902F006E8E004D0E660E6B860
   A000B1CB85B9C8B1CB85BAE6CC88B1CB85BBC8
   B1CB85BC60AD0AD285CB85BDAD0AD2,7495
VX 1320 DATA 293F38E91390F6693885BE85CC20
   DE25A000B9B900D0DFC8C004D0F660A90F8D41
   26A20020F625A5BD9DE331A5BE9D10,6041
HK 1330 DATA 31A93485BF9D2031204226E8E010
   D0E46000A5BE85CCA5BD85CBA5BFA0001891CB
   C8690191CB88E6CC18690191CB6901,6050
QX 1340 DATA C891CB60A21FAD842649018D8426
   D00ABD4B209DA035CA10F760BD6B209DA035CA
   10F76000A90085B8BD3031F01DC901,5512
JO 1350 DATA F012C902F007A5B905BBD01660A5
   BA05BCD00F60A5BB05BCD00860A5B905BAD001
   60E6B860A00084B8B9B900D006C8C0,6104
JC 1360 DATA 04D0F660E6B860A5BD85CBA5BE85
   CCA900A891CBC891CBE6CC91CB8891CB60BDE3
   3185BDBD103185BE4CC726A5C085CB,7411
YM 1370 DATA A5C185CC20DE25208526A5B8D01D
   20DF26A5C085BD9DE331A5C185BE9D1031BD20
   3185BF204226208B2760AD0AD22903,5556
QB 1380 DATA DD3031F0F69D303160AE4126BD20
   31F050BDE33185C0BD103185C1BD3031F00CC9
   01F016C902F02EC903F01CBD103138,5664
YG 1390 DATA E90185C120EC264C8127BD103118
   690185C120EC264C8127BDE33138E90185C020
   EC264C8127BDE33118690185C020EC,5188
TO 1400 DATA 26CA10A8AD7A2E8D792E60BD3031
   2902F048BDE33185CBBD103185CCE6CCE6CCE6
   CC20DE2520B526A5B8D00CAD0AD229,6049
IJ 1410 DATA 03D005A9019D3031BD103185CCC6
   CCC6CCC6CC20DE2520B526A5B8D00CAD0AD229
   03D005A9009D303160AD0AD22907D0,5366
OP 1420 DATA 0B18AD0AD2290169029D303160A2
   0BBD282885CC9D4031A90085CB9D5831AC0AD2
   B1CBC925D0F7E6CCB1CBC6CCC900D0,5865
LV 1430 DATA ED989D4C31A9AF91CBCA10D3A227
   BD34289DC035CA10F760383E444A50565C623E
   4A505C3C3C0000000000003C3C3C3C,4521
ZW 1440 DATA 0000000000003C3C3C3C00000000
   00003C3C3C3C0000000000003C3CA20B86C2A6
   C2301CBD5831C900F016C901F057C9,3056
TB 1450 DATA 02F01DC903F033C904F03CC6C24C
   602860A6C2AD0AD2293FD0F1FE58314C7B2820
   5D29A9B991CBC6CCA5CCDD2828F004,6091
DV 1460 DATA A90091CBFE58314C7B28205D29A9
   BA91CBFE58314C7B28205D29A9BB91CBA9019D
   58314C7B28205D29BD4031DD2828F0,5228
GI 1470 DATA 04A9BC91CBFE4031E6CCB1CBD00A
   A9B891CBFE58314C7B2838E9044A4A4AC906F0
   034C3929A9B891CBAE4126BD2031C9,6027
WQ 1480 DATA 34D019BDE33185CBBD103185CC20
   DE25A003B9B900C9B8F0098810F6CA10DD4C7B
   28A9B49D203185BFBDE33185BDBD10,6114
UM 1490 DATA 3185BE2042264C3929A6C2DE4031
   BD4031DD2828F00F85CCBD4C3185CBA900A891
   CB4C3B29A9009D58314C7B28A6C2BD,5334
UR 1500 DATA 4C3185CBBD403185CCA00060AE8F
   2920F625A5BD9D683185CBA5BE9D783185CCA9
   30A00091CBC8A93191CBCA10E16001,6078
OW 1510 DATA A20520F625A5BD85CBA5BE85CCA9
   01A00091CBC8A90291CBCA10E76020F625A5BD
   8DC029A5BE8DC129A91485BF4C4226,6272
KF 1520 DATA 0000A20520F625A5BD9D8831A5BE
   9D9431A90C85BF204226CA10E960A5B785CCA5
```

# BAT PACK

```
   B685CB20DE25A5B9C901F02FC914F0,6034
AE 1530 DATA 4CC90CF055C930D0034C7D2AC934
   D0034CB82AC9B4D0034CF12AC941D0034C662B
   A5BBC901F005C930F06260A5C3F01C,5842
VQ 1540 DATA A5C6D018C6C3206C2920062CA914
   8DC802A9FA85C6A5C3D0038D1A3360A90385C3
   20062CA92D8D1A3360A200BD8831C5,5261
KY 1550 DATA B6D007BD9431C5B7F006E8E006D0
   ED60BD883185BDBD943185BEA90185C5A90085
   C4A9238D183320062C4CC726A208BD,5989
ZL 1560 DATA 683185CBC5B6D010BD783185CCC5
   B7F00B38E901C5B7F004CA10E460A900A891CB
   C891CB20062CA90185C4A90085C5CE,6393
QP 1570 DATA 8F29A9248D183360AE4126A5C5F0
   11BDE331C5B6D007BD1031C5B7F004CA10EB60
   BDE33185BDBD103185BE20C726A900,5885
EC 1580 DATA 9D20318D183385C5208D2DA90A8D
   E03160A5C4F019A5C6F015A200BDE331C5B6D0
   07BD1031C5B7F006E8E010D0ED60BD,6244
RQ 1590 DATA E33185BDBD103185BE20C726A900
   9D203185C48D1833EE1C33208D2DEE1C33208D
   2D208D2DA91E8DE23160A900A899A0,5045
KZ 1600 DATA 31C8C00DD0F8A202AD0AD2290F38
   E90390F6A8B9A031D0F08A99A031E8E0078C65
   2BD0E4600020FA2BA6C7BDA031D003,6293
QP 1610 DATA 4C182CC905F01AC904F012C903F0
   1AC902F012AD1C33C910D002E6CF60A905D00A
   A904D006A903D002A90285C820062C,4969
GK 1620 DATA A20CBDA031C5C8F004CA10F660BD
   50338DF82BBD603318690280DF92BADF82B38E5
   B6F014B005C6B64CCD2BE6B6A90185,6216
TR 1630 DATA B1A5B1D0FC4CBC2BADF92B38E5B7
   F014B005C6B74CE92BE6B7A90185B3A5B3D0FC
   4CD82B8D1ED0600000A5B638E9184A,6636
FE 1640 DATA 4A4A4A85C760A9328D00D2A90A8D
   E13160A00091CBE6CC60A5C9D03A20FA2BA6C7
   86CAAD0AD2290718690270D50338D57,5662
UH 1650 DATA 2C85CBA901187D60338D582C85CC
   A9C420112CA9C520112CA9C620112CA9C72011
   2CA93085C9600000A6C9F040A000B9,4957
SG 1660 DATA 0B219D1036E8C8C010D0F4C6C9C6
   C9A5C9D02AAD572C85CBAD582C85CCA9002011
   2C20112C20112C20112CA6CABDAE31,5380
HH 1670 DATA 85CBBDBD3185CCA000A94191CB60
   A227A9009D0033CA10FA60A900AA9D2833E8E0
   28D0F8A9288DEF22A9338DF022A910,6062
ET 1680 DATA A2059D2D339D35339D3D339D4533
   CA10F160A205BD6F2D9D0233CA10F720042DAD
   1FD0C905D015EE022DAD022D29038D,4587
XW 1690 DATA 022D20042DAD1FD0C905F0F9AD84
   02D0DF600000AD022D1869118D003360AD812D
   1869108D1C3360AD032D1869118D12,4057
BJ 1700 DATA 3360209E2CAD8402F0F8A2118D6F
   2D9D0B33CA10F720182D200E2DAD7802C90EF0
   0CC90DF018AD8402F0234C3B2DAD81,4880
YB 1710 DATA 2DC909F0E6EE812D20822D4C382D
   AD812DC903F0D6CE812D20822D4C382D60302C
   21392532000002D292E292D352D1D,4000
XE 1720 DATA 1303A9058D1C02AD1C02D0FB60AD
   032D0A0A0A8DC82D1869058DC92DAC812DAEC9
   2DCAFE2D33BD2D33C91AD00AA9109D,4673
WV 1730 DATA 2D33ECC82DD0EB88D0E5AD1C33C9
   10F003CE1C338D1ED0600004A900A2089D1433
   CA10FAA9548D14338D15338D163360,5092
FA 1740 DATA A5C6F01A29E0D008ADC802490280
   C802C6C6A5C6D008A9A08DC80220FF2D60AE18
   2EBD683185CBBD783185CCA900A891,6077
MV 1750 DATA CBC891CBCA10EB6008AD04D00D05
   D02908F054A5C4F017A5C6F01320B125A203B5
   B938E9B8B007CA10F68D1ED060CE78,6236
PX 1760 DATA 2E207B2EA5C6F00620E02D4C442E
   AE782EA9009D14338D183385C585C485C38D1A
   33E000D009AE032D69019DCC3160A2,4942
LL 1770 DATA 0620AD2B8D1ED060030106A2648E
   00D28E13D0A9A88D01D2A9018D1C02AD1C02D0
   FBE8D0E88E01D28E00D260A9088D01,5206
GN 1780 DATA D2A23C8E00D28E18D0A9028D1C02
   AD1C02D0FBCAD0ED8E00D28E01D260ADE131F0
   09CEE13118699F8D01D260ADE231F0,6210
YB 1790 DATA 17A91E38EDE2318D00D2ADE2314A
   4A1869608D01D2CEE23160ADE031F00CCEE031
   18699F8D01D28D00D260A5C4D044AD,5965
JW 1800 DATA 0AD22901D03DA200BD2031C9B4D0
   2FBD30312902D014BD103138E5B7F00C9005A9
   004C3B2FA9014C3B2FBDE33138E5B6,4914
IO 1810 DATA F00C9005A9034C3B2FA9029D3031
   E8E008D0C560AD1C33C910D00AAE652B208D2C
   A91A91CB60065676C6A2008A9D0032,4921
TN 1820 DATA E8D0FA60616E6400666F72002E69
   636F6C61209E2C206C22209C24205723A9C88D
   1C02AD1C02D0FBA9648D1C02A900AA,4753
JU 1830 DATA 9D00339D43229D0836E8E028D0F2
   A200BD642F9D5022E8E00ED0F5AD1C02D0FB20
   A92C60205A2FA2008A95B0E8E020D0,5816
WW 1840 DATA F9209E2C20722FA94485B7A91385
   B6209E2C20C822209C242057232038B2BA20620
   AD2B20D22C20A92CAE022DA9009DCC,4442
ND 1850 DATA 31CA10FAA9088D7A2EA9008D032D
   AD7A2EC901F003CE7A2EAE032DBDCC31F0034C
   CB30BD562F8DC0028DC60220222D20,4896
DU 1860 DATA CA2DA9038D782E209C24A90085CF
   85B58D832585C585C485C385C685C98DB025A9
   A08DC802205723203B2B20902920AC,5469
FA 1870 DATA 2920ED27A97C8D00D08D01D0A206
   20AD2B201D26A9088D182E8D8F2920C2298D1E
   D0A910186D812D8D1C332084252019,4185
HP 1880 DATA 2EAD782EF045A5CFF006209C2E4C
   CB3020F92420DC2920442FA9038D1C02205C28
   205C2820642620E02DAD792ED01220,4370
QC 1890 DATA 292720DC2920FB2E205C28AE652B
   208D2CAD1C02D0E4854D4C7E30205A2FAE032D
   EC022DF006EE032D4C0830BDCC31D0,4488
HX 1900 DATA 034CF92FCA10F5A208BDFF309D1E
   33CA10F7AD8402D0FBAD8402F0FB4CCF2FA7A1
   ADA580AFB6A5B20000000000000000,5591
ZU 1910 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000000000,0
ZX 1920 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000000000,0
AA 1930 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000000000,0
```

```
NL 10 REM  LOAD AND RUN ROUTINE
           FOR BAT PACK
QC 20 OPEN #1,4,0,"D:BATPACK.OBJ"
OC 30 POKE 850,7:POKE 852,0:POKE 853,32:P
   OKE 856,255:POKE 857,255
SN 40 X=USR(ADR("hhh█LV█"),16)
BQ 50 CLOSE #1:X=USR(8232)
```

*Listing 2*

# ARTIFACTING

How would you like to see a new set of colours on your Atari? What about a true red and new vibrant greens, yellows, and purples? And how about an almost endless combination of multicolour characters in graphics 0? And all this without using player-missile graphics or display list interrupts. Impossible? Type in the program and be amazed.

It uses a phenomenon known as 'artifacting' previously only used on American programs. This consists of plotting pixels in special striped or checkered patterns which, because of the way colour is stored in a television signal, produces different colours than those normally associated with the pixels.

This technique was described by various articles which appeared in US Atari magazines and has been used in some commercial programs, such as the Ultima series by Origin Systems Inc. Unfortunately, due to the differences in the American NTSC and our PAL television systems, any British Atari owner would see dull grey stripes tinted with the occasional horrible blue or green.

A few years ago, I read an article by Anthony Ball, explaining how he discovered some PAL artifacting ability. The programs he presented did show some startling new colour in the high resolution graphics 8 mode. Since then, I have been surprised that nobody has written any programs or articles to take advantage of these colours never before seen on the Atari. I decided it was time to rectify this and this article is a guide to PAL artifacting as a result of my own 'experiments'.

Artifacting can be used on either graphics modes 0 or 8. These use the highest resolution available on the 8-bit Atari. Rather than try to plot the special patterns required on a graphics 8 screen, which is very difficult, the program uses graphics 0 characters, the artifacted colours being easier to produce and alter.

Diagram 1 below shows the character patterns for the new yellow and violet. These patterns are exactly the same except one is shifted four pixels over from the other. The vertical stripes cause the artifacting to occur and the movement by four pixels changes the colour from yellow to violet. With the more complex checkered patterns in diagram 2, moving the red character up or down by one pixel will give the green.

***Joel Goodwin explains how to use artifacting on the PAL system for true additional colours***

## HOW TO USE ARTIFACTING IN YOUR PROGRAMS

As with everything, nothing is perfect and there are some conditions to be met if you are to be able to use and see these wonderful new colours. Firstly, the colour on your television needs to be turned up high. You will be reminded of this at the beginning of the program. The second condition is that the screen needs to be adjusted slightly for the correct colours to appear every time and I have written a routine to do this.

The routine is in lines 15000-15290. Simply include it in your own program and follow these instructions. First, once your character set is redefined, place the location of the character set in the variable FONT and insert a GOSUB 15200 command. This will run the routine to adjust the screen. The user will be asked to press keys 1-8 until the red, green and yellow colours displayed match the words underneath them. Only one of these keys will be the correct adjustment and it is usually one of the first four. If you have used different characters for the red, green or yellow colours, adjust line 15200 accordingly, which contains these characters in that order. Also, avoid using the rightmost column as the routine may scroll the screen to the right by 1 to 3 pixels causing anything printed in this column to overlap on the left side of the screen. Whenever you need to issue a GRAPHICS 0 command use GOSUB 15000 instead. Note, the routine uses locations 1536-1613 of page six.

## THE EDITOR PROGRAM

When you run the program, you will first see the adjustment screen. Follow the onscreen instructions and then press the Space Bar. You will then be given a choice of seeing a demo screen or going to the editor. The demo shows something of what can be achieved using combinations of these colours. The main program is a character set editor dedicated to artifacting (you can also use it to design ordinary characters). Artifacting can be produced on other character editors, but without the screen adjustment routine, you would need to keep rebooting until the colours appeared correctly.

The main screen of the program displays the 64 multicolour patterns and colours that I have discovered so far. Each of them is displayed in 4-character blocks on the left of the screen. On the right is an 8x8 grid for editing. You can make use of any of these patterns in your programs or use the editor to alter them and create even more. Just use my patterns as a

```
EW 0 REM ############################################
UZ 1 REM #          ARTIFACTING              #
VA 2 REM #       CHARACTER EDITOR            #
GE 3 REM #              by                   #
JL 4 REM #          Joel Goodwin             #
HC 5 REM # ------------------------------- #
TL 6 REM # NEW ATARI USER - OCT 1991        #
FD 7 REM ############################################
NN 8 REM
LQ 10 GOTO 100
RL 19 REM  DRAW CHARACTER GRID
IY 20 MEM=FONT*256+CH*8:Z=0:CL=C1
ZW 30 FOR ROW=Y TO Y+7:VALUE=128:BYTE=PEE
   K(MEM+ROW-Y):IF CHK THEN Z=(Z=0)
TK 40 IF BYTE=0 AND CHK=0 THEN COLOR CL:P
   LOT X,ROW:DRAWTO X+7,ROW:NEXT ROW:RETU
   RN
PI 50 FOR BIT=X TO X+7:IF CHK THEN Z=(Z=0
   ):CL=C1*Z+C2*(1-Z)
KB 60 IF BYTE<VALUE THEN COLOR CL:GOTO 90
JO 70 BYTE=BYTE-VALUE:COLOR C3:IF VALUE=1
    OR BYTE>0 OR CHK THEN 90
FI 80 PLOT BIT,ROW:COLOR CL:PLOT BIT+1,RO
   W:DRAWTO X+7,ROW:BIT=50:GOTO 95
PS 90 PLOT BIT,ROW
VX 95 VALUE=VALUE/2:NEXT BIT:NEXT ROW:RET
   URN
HJ 100 FONT=PEEK(106)-4:POKE 106,FONT-1:G
   RAPHICS 0:GOSUB 1000
PB 110 DRAW=20:IF  NOT SKIP THEN GOSUB 33
   00
HP 120 GOSUB 3000:SKIP=0
XF 199 REM  MAIN LOOP
DB 200 GOSUB DRAW:GOSUB 570:Z=0:POKE POS,
```

```
   CUR:Z=0:POKE 556,1:POKE 542,W:Z=0
QX 210 S=PEEK(632):T=PEEK(53264):IF PEEK(
   764)<>255 THEN 600
XT 220 IF  NOT T THEN 350
PN 230 IF PEEK(556) OR S<>15 THEN 260
QY 240 Z=(Z=0):POKE POS,CS*Z+CUR*(Z=0)
JQ 250 POKE 556,1:POKE 542,W:GOTO 210
MX 260 IF S=15 THEN 210
UY 270 DX=J(S,0):DY=J(S,1)
IC 280 X1=CX+DX:IF X1<0 OR X1>38 THEN X1=
   CX
FY 290 Y1=CY+DY:IF Y1<0 OR Y1>22 THEN Y1=
   CY
JA 300 IF X1=CX AND Y1=CY THEN 210
EC 310 POKE POS,CS:CX=X1:CY=Y1
GB 320 POS=SC+CX+CY*40:CS=PEEK(POS):CUR=6
   2+(CS>127)*128
QJ 330 POKE POS,CUR:Z=0:POKE 542,W:POKE 5
   56,1:GOTO 210
WL 349 REM  TRIGGER SUBROUTINE
SB 350 IF CS=0 THEN 210
XX 360 IF JMP THEN GOSUB 850
ZD 370 POKE 53279,1:IF CX>24 THEN 390
JF 380 CH=CS:GOTO 200
XL 390 IF CS<>128 AND CS<>63 THEN 210
PJ 400 IF CH=0 THEN 230
GI 410 CS=128-(CS=128)*65:CUR=62+128*(CS>
   127)
XN 420 BIT=8-CX+X:ROW=CY-Y:VALUE=2^BIT/2:
   BYTE=PEEK(MEM+ROW)
KT 430 OP=SGN(CS-127):POKE MEM+ROW,BYTE+O
   P*VALUE
QZ 440 POKE POS,CUR:S=STICK(0):GOTO 260
NW 569 REM  SCREEN RESET
```

**CONTINUED** ☞

starting point.

The flashing circle on the screen is the cursor. Use the joystick in port 1 to move it. Press the trigger when over a character and it's enlarged pattern will be displayed on the grid. To see the character data of this pattern, press the Space Bar. Above the grid more copies of the selected character will be displayed, 16 in a block and 2 separately. These will mirror any changes made on the grid and make it easy for you to see what effect your editing is having. You can alter the pattern by moving the cursor onto the grid and pressing the trigger to draw or erase. The arrow keys will allow you to scroll the whole character in any direction. Each keypress moves it by one pixel and this can be done as often as you like. When you are satisfied just move off the grid and choose another pattern to alter.

Using the scrolling can give quick results as there are many different positions possible for each character. Not all of these positions give useful colours and some give repeat colours, but it is fun to experiment and see what you can discover. To create multicolour characters all you need do is combine a checkered and striped pattern and scroll it around until you find one you like. Just drawing at random and scrolling can quickly create something new. Bare in mind that two pixels side-by-side in any row will produce white.

The program understands the following commands.

| | |
|---|---|
| **ESC** | - clears character |
| **R** | - restores original character |
| **ARROW KEYS** | - scroll up down left and right |
| **SPACE BAR** | - shows character data |
| **S** | - saves out modified character set to cassette or disk for storage |
| **L** | - loads in character set from cassette or disk |
| **H** | - brings up a help screen with all these commands displayed |

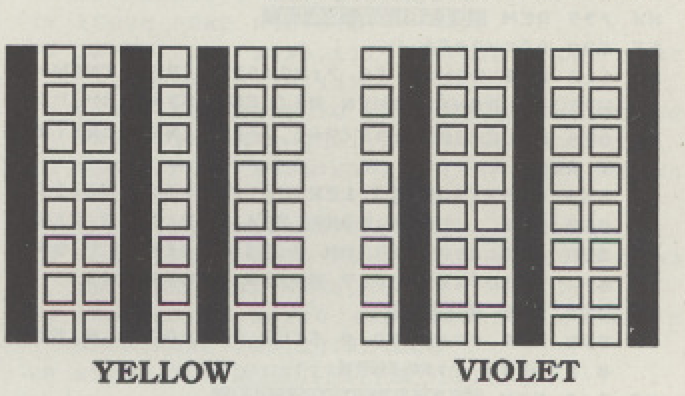



**Diagram 1**

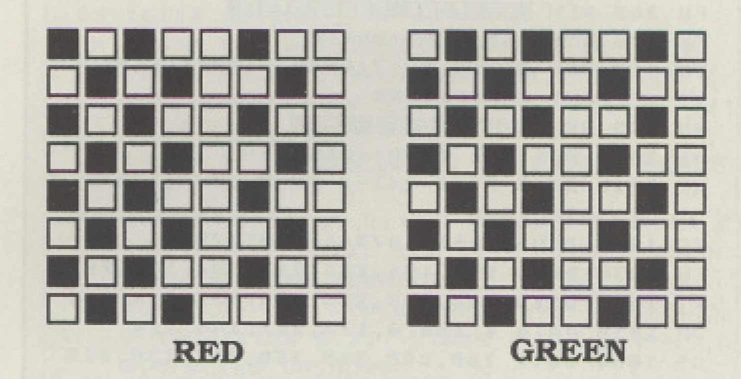



**Diagram 2**

***COMING NEXT ISSUE ...***

***RUNAROUND - a game writing with artifacting***

```
BO 570 Z=PEEK(POS):IF Z<>CS AND Z<>CUR TH
   EN CS=Z:CUR=62+(CS>127)*128
OO 575 IF SKIP THEN SKIP=0:RETURN
MM 580 POSITION 27,20:? #6;"PRESS H":POSI
   TION 27,21:? #6;"FOR HELP":IF  NOT CH
   THEN RETURN
RX 590 POKE SC+269,CH:POKE SC+272,CH:FOR
   P=1 TO 4:FOR Z=29 TO 32:POKE SC+Z+P*40
   ,CH:NEXT Z:NEXT P:RETURN
WQ 599 REM  KEYBOARD ROUTINE
YF 600 RESTORE :K=PEEK(764):IF  NOT CH TH
   EN IF K<>57 AND K<>0 THEN POKE 764,255
   :GOTO 210
VS 610 READ P,Z:IF P=-1 THEN POKE 764,255
   :GOTO 210
DD 620 IF K<>P THEN 610
SN 625 IF JMP THEN 850
XI 630 GOSUB 900:GOSUB Z:POKE 764,255:SKI
   P=1:GOTO 200
RX 640 DATA 6,650,7,650,14,770,15,750,33,
   800,28,950,40,970,57,3200,0,3400,62,34
   00
AS 649 REM  HORIZONTAL SCROLLING
UO 650 OP=2:IF K=7 THEN OP=0.5
LJ 660 FOR ROW=0 TO 7
NI 670 BYTE=PEEK(MEM+ROW):BYTE=BYTE*OP
VV 680 IF BYTE<>INT(BYTE) THEN BYTE=BYTE+
   127.5
OT 690 IF BYTE>255 THEN BYTE=BYTE-255
MG 700 POKE MEM+ROW,BYTE:NEXT ROW:RETURN
XM 749 REM  VERTICAL SCROLLING
DE 750 P=PEEK(MEM+7):FOR ROW=7 TO 1 STEP
   -1
ZB 760 POKE MEM+ROW,PEEK(MEM+ROW-1):NEXT
   ROW:POKE MEM,P:RETURN
MN 770 P=PEEK(MEM):FOR ROW=0 TO 7
IE 780 POKE MEM+ROW,PEEK(MEM+ROW+1):NEXT
   ROW:POKE MEM+7,P:RETURN
XX 799 REM  DISPLAY DATA
EZ 800 D$="DATA "
LH 810 FOR ROW=0 TO 7:N$=STR$(PEEK(MEM+RO
   W)):IF ROW<7 THEN N$(LEN(N$)+1)=","
EX 820 P=LEN(D$):D$(P+1,P+LEN(N$))=N$:NEX
   T ROW
HJ 830 POSITION 19-LEN(D$)/2,23:? #6;D$;
LI 840 POP :JMP=1:POKE 764,255:GOTO 210
MF 850 JMP=0:POSITION 2,23:D$(1)=" ":D$(3
   6)=" ":D$(2)=D$:? #6;D$;:GOTO 210
CT 899 REM  BEEP
TP 900 FOR P=15 TO 0 STEP -5:SOUND 0,50,1
   0,P:NEXT P:RETURN
YQ 949 REM  CLEAR CHARACTER
KI 950 FOR ROW=0 TO 7:POKE MEM+ROW,0:NEXT
    ROW:RETURN
FU 969 REM  RESTORE CHARACTER
FX 970 RESTORE 1360+CH*10
TH 980 FOR ROW=0 TO 7:READ P:POKE MEM+ROW
   ,P:NEXT ROW:RETURN
XU 999 REM  CHARACTER SET
OI 1000 RESTORE 1000:J=1535
XF 1010 READ Z:IF Z<>-1 THEN J=J+1:POKE J
   ,Z:GOTO 1010
ZC 1020 Z=USR(1536,57344,FONT*256)
EU 1030 DATA 104,104,133,213,104,133,212
NT 1040 DATA 104,133,215,104,133,214,162
JP 1050 DATA 4,160,0,177,212,145,214
OS 1060 DATA 200,208,249,230,213,230,215
ZU 1070 DATA 202,208,240,96,-1
HO 1080 X=488:Y=567:GOSUB 1150
LD 1090 GOSUB 15200:GOSUB 1200
GT 1100 GOSUB 15000:POSITION 14,12:? "PLE
   ASE WAIT"
AY 1110 X=568:Y=630:GOSUB 1150
QT 1120 POKE 559,0
BU 1130 X=631:Y=1023:GOSUB 1150
AN 1140 RETURN
FH 1150 FOR Z=FONT*256+X TO FONT*256+Y
```

```
CV 1160 READ C:POKE Z,C:NEXT Z:RETURN
MH 1200 ? CHR$(125):POSITION 7,8:? "PRESS
    1 FOR DEMO SCREEN":POSITION 10,9:? "O
   R 2 FOR EDITOR"
EU 1210 OPEN #1,4,0,"K:"
TR 1220 GET #1,K:K=K-49:IF K<>0 AND K<>1
   THEN 1220
XJ 1230 CLOSE #1:SKIP=K:? CHR$(125):RETUR
   N
AQ 1970 DATA 0,124,16,16,16,16,124,0
SZ 1980 DATA 0,60,126,102,102,126,60,0
UY 1990 DATA 0,126,66,66,66,66,126,0
OG 2000 DATA 41,82,41,82,41,82,41,82
OX 2010 DATA 164,82,164,82,164,82,164,82
OO 2020 DATA 82,164,82,164,82,164,82,164
IH 2030 DATA 74,37,74,37,74,37,74,37
EO 2040 DATA 73,73,73,73,73,73,73,73
VH 2050 DATA 148,148,148,148,148,148,148,
   148
HZ 2060 DATA 8,16,36,130,65,36,8,16
XT 2070 DATA 32,80,160,0,0,82,5,2
OL 2080 DATA 33,66,33,16,8,66,33,66
ZQ 2090 DATA 164,66,164,16,0,66,164,82
AS 2100 DATA 66,164,66,0,16,164,66,164
IC 2110 DATA 66,37,66,0,8,37,66,37
SU 2120 DATA 5,144,32,64,32,64,144,10
KV 2130 DATA 0,16,40,69,40,16,0,16
MY 2140 DATA 84,148,146,130,52,18,148,84
WI 2150 DATA 16,40,16,10,5,2,4,8
ZG 2160 DATA 21,82,16,32,16,8,20,82
VM 2170 DATA 0,0,16,36,0,82,164,66
QC 2180 DATA 2,5,136,82,37,136,80,32
WZ 2190 DATA 148,72,136,73,148,84,148,73
GO 2200 DATA 0,82,40,82,40,82,40,0
UB 2210 DATA 0,82,36,82,36,82,36,0
UN 2220 DATA 0,36,82,36,82,36,82,0
XK 2230 DATA 0,36,74,36,74,36,74,0
CG 2240 DATA 168,21,168,21,168,21,168,21
KZ 2250 DATA 42,69,42,69,42,69,42,69
QO 2260 DATA 162,84,162,84,162,84,162,84
IH 2270 DATA 21,168,21,168,21,168,21,168
PQ 2280 DATA 82,164,82,164,164,82,164,82
OH 2290 DATA 41,82,41,82,82,41,82,41
LA 2300 DATA 82,41,82,82,41,82,41,41
JE 2310 DATA 164,82,164,73,164,82,164,164
KQ 2320 DATA 170,65,170,73,170,73,162,85
WO 2330 DATA 16,40,84,84,84,84,40,16
IC 2340 DATA 20,82,21,82,0,0,0,0
SH 2350 DATA 10,72,72,33,33,207,72,20
QX 2360 DATA 160,18,36,16,160,2,4,2
AY 2370 DATA 2,160,18,132,16,160,2,132
OH 2380 DATA 164,144,160,130,132,18,36,14
   6
ZP 2390 DATA 74,33,66,9,10,40,72,41
YJ 2400 DATA 20,18,22,84,152,34,196,18
AG 2410 DATA 82,0,164,82,180,82,0,164
RB 2420 DATA 41,0,82,57,82,41,0,82
IN 2430 DATA 82,0,41,90,41,82,0,41
AS 2440 DATA 164,0,82,180,82,164,0,82
QR 2450 DATA 144,144,148,148,148,148,20,2
   0
HI 2460 DATA 148,0,148,148,180,148,0,148
MJ 2470 DATA 73,73,74,148,74,148,73,73
YU 2480 DATA 41,42,41,42,41,42,41,40
QF 2490 DATA 82,85,82,85,82,85,82,85
RH 2500 DATA 164,21,164,21,164,21,164,164
EN 2510 DATA 8,36,74,164,82,37,74,36
CH 2520 DATA 37,82,84,82,37,34,36,82
HR 2530 DATA 36,18,36,18,0,36,18,36
CO 2540 DATA 40,82,8,32,82,36,82,8
VB 2550 DATA 0,0,74,160,64,4,10,164
SG 2560 DATA 0,0,64,168,168,84,138,36
VO 2570 DATA 0,66,5,18,0,72,160,66
UN 2580 DATA 20,42,85,170,85,170,84,40
FR 2590 DATA 73,170,136,73,73,170,73,170
CV 2600 DATA 255,211,169,211,169,211,169,
   255
```

```
PO 2610 DATA 255,211,165,211,165,211,165,
    255
LZ 2620 DATA 255,165,211,165,211,165,211,
    255
PO 2630 DATA 255,165,203,165,203,165,203,
    255
LQ 2999 REM  INITIALISE DISPLAY 
ZI 3000 X=27:Y=8:CX=31:CY=16:C1=95:C3=160
    :CUR=62:W=10:DIM D$(36),N$(4),C$(9),FN
    $(14):RESTORE 3000
QG 3010 GOSUB 15000:POKE 16,64:POKE 53774
    ,54:SC=PEEK(88)+PEEK(89)*256:C$="CHARA
    CTER":POKE 82,26
FF 3020 DX=1:DY=0:FOR CH=64 TO 127
YC 3030 FOR P=0 TO 1
RG 3040 POKE SC+DX+P+DY*40,CH
AQ 3050 POKE SC+DX+P+40+DY*40,CH
EW 3060 NEXT P:DX=DX+3:IF DX=25 THEN DX=1
    :DY=DY+3
BM 3070 NEXT CH:CH=0:POS=SC+CX+CY*40
GZ 3080 DIM J(14,1)
LC 3090 FOR P=5 TO 14
LN 3100 READ DX,DY
TK 3110 J(P,0)=DX:J(P,1)=DY
JG 3120 NEXT P:RETURN
YS 3130 DATA 1,1,1,-1,1,0,0,0,-1,1,-1,-1,
    -1,0,0,0,0,1,0,-1
EX 3199 REM  HELP SCREEN 
DJ 3200 GOSUB 3290
GF 3210 POSITION 26,1
ZN 3220 ? #6;"ESC CLEAR":? #6;C$:? #6;"R
    RESTORE":? #6;C$:? #6
JV 3230 ? #6;"ARROW KEYS":? #6;"SCROLL":?
     #6;C$:? #6;"UP,DOWN,":? #6;"LEFT,RIGH
    T"
GH 3240 ? #6;"SPACE SHOWS":? #6;C$:? #6;"
    DATA":? #6
XY 3250 ? #6;"S SAVES":? #6;"MODIFIED":?
    #6;C$;" SET":? #6;"L LOADS":? #6;C$;"
    SET"
BU 3260 ? #6:? #6;"TRIGGER TO":? #6;"CONT
    INUE"
XQ 3270 IF STRIG(0) THEN 3270
RR 3280 GOSUB 3290:POKE 764,255:POP :GOTO
     200
KU 3290 COLOR 32:FOR C=25 TO 38:PLOT C,1:
    DRAWTO C,22:NEXT C:RETURN
DG 3299 REM  DEMO SCREEN 
OO 3300 ? #6;CHR$(125):RESTORE 3300:CHK=1
    :C3=160:X=32:Y=1
QA 3310 READ C1,C2,CH:IF C1=-1 THEN 3340
QZ 3320 GOSUB DRAW:X=X-8:IF X=-8 THEN COL
    OR 32:PLOT 39,1:DRAWTO 39,8:X=27:Y=10
PY 3330 GOTO 3310
BV 3340 POKE 764,255:POSITION 6,21:? #6;"
    PRESS SPACE BAR FOR EDITOR":POKE 559,3
    4
FP 3350 IF PEEK(764)<>33 THEN 3350
VK 3360 CHK=0:GOSUB 900:POKE 764,255:RETU
    RN
HM 3370 DATA 118,103,61,9,106,50,252,120,
    33,114,14,52,1,2,33
YY 3380 DATA 119,14,50,99,20,37,100,100,5
    1,120,8,53,-1,-1,-1
VV 3399 REM  LOAD AND SAVE CHAR. SET 
YG 3400 POP :P=(K=62)*4+4:POKE 764,255
DQ 3410 GOSUB 3290
TS 3420 POSITION 26,8:IF P=8 THEN 3500
VA 3430 ? #6;"LOAD":GOSUB 3550
CI 3440 IF FN$="C:" THEN ? #6;"."
WP 3450 ? #6:? #6;"TO LOAD,":? #6;"PRESS
    RETURN.":GOSUB 3480
QO 3460 GET #1,Z:POKE C+BYTE,Z:BYTE=BYTE+
    1:IF BYTE<1024 THEN 3460
BH 3470 CLOSE #1:CLOSE #2:GOSUB 3290:GOTO
     200
OI 3480 TRAP 3620:BYTE=0:C=FONT*256:IF FN
    $<>"C:" THEN GET #2,K
JH 3490 OPEN #1,P,0,FN$:RETURN
CW 3500 ? #6;"SAVE":GOSUB 3550
IG 3510 IF FN$="C:" THEN ? #6:? #6;"AND R
    ECORD."
JB 3520 ? #6:? #6;"TO SAVE,":? #6;"PRESS
    RETURN.":GOSUB 3480
BD 3530 Z=PEEK(C+BYTE):PUT #1,Z:BYTE=BYTE
    +1:IF BYTE<1024 THEN 3530
TR 3540 GOTO 3470
AL 3550 ? #6:? #6;"C CASSETTE":? #6;"D DI
    SK":? #6:OPEN #2,4,0,"K:":GET #2,K
WA 3560 IF K<>68 AND K<>67 THEN POP :GOTO
     3470
AU 3570 IF K=67 THEN FN$="C:":GOTO 3600
GB 3580 ? #6:? #6;"FILENAME?":POSITION 25
    ,15:? #6;"D:";:INPUT #16;D$:IF D$="" T
    HEN 3470
UB 3590 FN$="D:":FN$(3)=D$:? #6
OH 3600 ? #6;"INSERT ";:IF FN$="C:" THEN
    ? #6;"TAPE &":? #6;"PRESS PLAY";:RETUR
    N
EW 3610 ? #6;"DISK.":RETURN
TN 3620 GOSUB 3290:GOSUB 900:GOSUB 900:CL
    OSE #1
JS 3630 POSITION 26,10:? #6;"ERROR ";PEEK
    (195)
VZ 3640 ? #6:? #6;"PRESS ANY KEY":GET #2,
    K:CLOSE #2:GOSUB 3290:GOTO 200
AK 14995 REM  SCREEN ADJUSTMENT ROUTINE 
SQ 14996 REM USE 15000-15290 IN YOUR OWN
FQ 14997 REM PROGRAMS.
FJ 14998 REM
QJ 14999 REM  CREATE ADJUSTABLE GR.0 
XX 15000 GRAPHICS 0:POKE 710,0:POKE 752,1
    :? CHR$(125);:POKE 756,FONT:XSC=PEEK(8
    8)+PEEK(89)*256:XSC=XSC-4
TY 15010 POKE XSC+3,0
VY 15020 POKE 1536,112-(XVT*16):POKE 1537
    ,112:POKE 1538,112
TR 15030 FOR XD=0 TO 23:POKE 1539+XD*3,82
    :XSHI=INT(XSC/256):XSLO=XSC-XSHI*256
ZC 15040 POKE 1540+XD*3,XSLO:POKE 1541+XD
    *3,XSHI
PM 15050 XSC=XSC+40:NEXT XD
YC 15060 POKE 1539+XD*3,65:POKE 1540+XD*3
    ,0:POKE 1541+XD*3,6
WU 15070 POKE 54276,XHZ:POKE 560,0:POKE 5
    61,6:POKE 709,10:RETURN
YP 15099 REM  ADJUSTING ROUTINE 
AD 15100 XVT=INT(XADJ/5):XHZ=XADJ-XVT*4-1
EW 15110 POKE 54276,XHZ:POKE 1536,112-(XV
    T*16)
DS 15120 RETURN
FX 15199 REM  COLOUR ADJUSTMENT SCREEN 
LV 15200 GOSUB 15000:POKE 752,1:? :FOR B=
    1 TO 3:POSITION 5,9+B:? "├├├├├├├├├ |||
    |||||| ┐┐┐┐┐┐┐┐┐":NEXT B
AV 15210 ? "     Red       Green      Yello
    w  "
FS 15220 POSITION 2,19:? "PRESS NUMBERS F
    ROM 1 TO 8 UNTIL ALL":? "  THREE COLOU
    RS ABOVE ARE CORRECT"
SK 15230 ? "      THEN PRESS THE SPACE BAR
    .":POSITION 2,2:? "THIS PROGRAM USES A
    RTIFACTED COLOURS"
NW 15240 ? " TO SEE THEM PROPERLY YOU MUS
    T TURN":POSITION 8,4:? "YOUR TV COLOUR
     UP HIGH!"
ZG 15250 OPEN #5,4,0,"K:"
DF 15260 GET #5,XK:IF XK=32 THEN CLOSE #5
    :RETURN
AW 15270 XK=XK-48:IF XK<1 OR XK>8 THEN 15
    260
HP 15280 XADJ=XK:GOSUB 15100
EH 15290 GOTO 15260
```

Ian Finlayson's

# TUTORIAL TIME

# SCREEN SAVE AND LOAD

In the last issue I gave an introduction to the make up of a screen full of text or graphics or a mixture of the two as it is helpful to understand this and the display list in order to understand how to save a screen to tape or disk.

If you always use the same graphics mode to develop your screens it is easy to write a program which will just take the screen data and copy it to disk, then to restore the screen all you have to do is reverse the process. This is rather inflexible, however, so I will take a different approach and show you a screen save that can save any screen, even one with mixed graphics modes. To achieve this you have to save not only the screen data but also the display list data and the colour registers.

The amount of data that is saved to describe a screen will depend very much on the graphics mode of the screen. This will affect the amount of storage space needed on disk or tape to accommodate the data and it will also change the time it takes to load or save a screen. Low resolution screens (say GR.1 or GR.2) have little data and will load or save very quickly, while GR.8 and above will take a significantly longer time. A screen in graphics mode 8 takes up over seven times as much space as a Graphics 0 text screen and more than 16 times a Graphics 2 or 3 screen. If you wish to set up a slide show of screens it can be quite a good idea to intersperse high resolution graphics screens with introductory low resolution text, thus keeping the momentum of the presentation going.

## SCREEN SAVE

The best way to explain what is needed is to work through the program examples in turn. You may find it helpful to read my article from the last issue as background to this one, or some other description of Display Lists.

**Line 12** is a reminder - the screen save is not designed to work on its own. It must be combined with the program that generates the pictures and that program must define the file name for the picture to be saved with, for example:

DIM F$(14):F$="D:PICTURE1.PIC"

**Line 30000** selects I/O channel number 1 and opens it to put data.

**Line 30010** puts the contents of memory location 87 to the disk file through I/O channel 1. Location 87 holds the graphics mode.

**Line 30020** put the contents of the nine colour registers (memory locations 704-712) to the disk file.

**Line 30030** finds the value of the top of RAM. Lines 30040 and 30050 read the two parts of the address of the start of the display list and combine them to the value DLIST.

**Line 30060** works out SIZE the size of the block of data between DLIST and RAMTOP that we want to save. This block contains the display list and screen data.

**Lines 30070-30120**. This is a bit of a cheat for a Basic programmer as it uses a machine code subroutine. Don't ask me exactly how it works, but it uses the Atari's central I/O system (CIO) directly to achieve a reasonably high data transfer rate. Basic is too slow for this task.

**Line 30070** sets up to use input/output control block number 1 (IOCB #1) - the one we opened in line 30010. Each IOCB is a block of 16 memory locations starting with IOCB 0 at memory location 832. We only have to set up a few of these memory locations, first IOCB+2 must contain 11 to output binary data to tape or disk.

**Line 30080** puts the address of the start of the data we want to transfer into IOCB+4 and IOCB+5 in low byte high byte form. This is the address of the start of the display list that we looked at in line 30040.

**Lines 30090 and 30100** split SIZE into its low byte high byte components and POKEs the results into IOCB+8 and IOCB+9 to tell CIO what quantity of data is to be transferred.

**Line 30110** is the magic! The string "h-h-h-inverse *-L-V-inverse d" is a small piece of machine code in the form of a character string which is called by the USR function. It effectively means "carry out Input/Output in accordance with the settings in the selected IOCB". The selected IOCB is defined by CH.

Finally in **line 30120** the channel must be closed after use or an error will occur next time we try to open it.

## SCREEN LOAD

A quick comparison of programs 1 and 2 reveals great similarities. We are using the same machine code control of the IOCB but this time to recover rather than save data. I will not discuss every line in detail but only those that are significantly different.

In **line 30000** the 8 (instead of 4) in the OPEN command means load rather than save.

**Line 30010** recovers the graphics mode (GR). If it is in the range 1 to 8 we add 16 to make sure that there is no text window, so the new screen will overwrite the old. If a picture with a text window was saved it is restored as the display list and graphics data are loaded. Without this step the screen sometimes seems to slip out of alignment to one side.

In **line 30020** we carry out a Basic Graphics command which resets the DL. It is not good enough to POKE the value to 87 as this will not reset the DL.

**Line 30070**. POKE IOCB+2,7 sets up for binary data retrieve.

That is all there is to it. This listing can be used in a stand alone mode with very little modification. Just add a line like this: 15 DIM F$(15): F$="D:FILENAME.EXT" If filename.ext is the name of a valid picture data file on your current disk it will be recovered when you RUN the listing.

```
WO 1 REM ********************************
CR 2 REM *    TUTORIAL SUBROUTINES      *
HE 4 REM *        SCREEN SAVE           *
XU 5 REM *            by                *
CO 6 REM *       Ian Finlayson          *
OG 7 REM *------------------------------*
FC 8 REM * NEW ATARI USER - OCT 1991    *
WW 9 REM ********************************
AY 10 REM
AG 11 REM *******************************
TF 12 REM *GRAPHICS DRAW PROGRAMME      *
          *MUST STATE FILE NAME F$ FOR*
          *PICTURE TO BE SAVED          *
AK 13 REM *******************************
WB 29999 REM *** INITIALISE CHANNEL FOR
             *** CIO  PUT USING IOCB #1
OU 30000 CH=1:OPEN #CH,8,0,F$
XV 30009 REM *** SAVE GRAPHICS MODE
UY 30010 PUT #CH,PEEK(87)
OE 30019 REM *** SAVE COLOUR DATA
IA 30020 FOR C=0 TO 8:PUT #CH,PEEK(704+C)
   :NEXT C
HJ 30029 REM *** FIND RAMTOP/DISPLAY LIST
YY 30030 RAMTOP=PEEK(106)*256
UN 30040 ADRHI=PEEK(561):ADRLO=PEEK(560)
OO 30050 DLIST=ADRHI*256+ADRLO
XG 30060 SIZE=RAMTOP-DLIST+1
EB 30069 REM *** USE CIO TO TRANSFER
             *** SCREEN DATA
KX 30070 IOCB=832+CH*16:POKE IOCB+2,11
AC 30080 POKE IOCB+4,ADRLO:POKE IOCB+5,AD
   RHI
AH 30090 SIZEHI=INT(SIZE/256):SIZELO=SIZE
   -SIZEHI*256
OT 30100 POKE IOCB+8,SIZELO:POKE IOCB+9,S
   IZEHI
FB 30110 I=USR(ADR("hhh▒LV▣"),CH*16)
PK 30120 CLOSE #CH
```

*Program 1 - Screen Save*

```
WO 1 REM ********************************
CR 2 REM *    TUTORIAL SUBROUTINES      *
HE 4 REM *        SCREEN SAVE           *
XU 5 REM *            by                *
CO 6 REM *       Ian Finlayson          *
OG 7 REM *------------------------------*
FC 8 REM * NEW ATARI USER - OCT 1991    *
WW 9 REM ********************************
AY 10 REM
AG 11 REM *******************************
HE 12 REM *HOST DISPLAY  PROGRAMME      *
          *MUST STATE FILE NAME F$ FOR*
          *PICTURE TO BE SAVED          *
AK 13 REM *******************************
RR 29999 REM *** INITIALISE CHANNEL FOR
             *** CIO  GET USING IOCB #1
LO 30000 CH=1:OPEN #CH,4,0,F$
XV 30009 REM *** RETRIEVE GRAPHICS MODE
EL 30010 GET #CH,GR:IF GR>0 AND GR<9 THEN
    GR=GR+16
CB 30015 GRAPHICS GR
TG 30019 REM *** RETRIEVE COLOUR DATA
EA 30020 FOR C=0 TO 8:GET #CH,COL:POKE 70
   4+C,COL:NEXT C
HJ 30029 REM *** FIND RAMTOP/DISPLAY LIST
YY 30030 RAMTOP=PEEK(106)*256
UN 30040 ADRHI=PEEK(561):ADRLO=PEEK(560)
OO 30050 DLIST=ADRHI*256+ADRLO
XG 30060 SIZE=RAMTOP-DLIST+1
EB 30069 REM *** USE CIO TO TRANSFER
             *** SCREEN DATA
EU 30070 IOCB=832+CH*16:POKE IOCB+2,7
AC 30080 POKE IOCB+4,ADRLO:POKE IOCB+5,AD
   RHI
AH 30090 SIZEHI=INT(SIZE/256):SIZELO=SIZE
   -SIZEHI*256
OT 30100 POKE IOCB+8,SIZELO:POKE IOCB+9,S
   IZEHI
FB 30110 I=USR(ADR("hhh▒LV▣"),CH*16)
PK 30120 CLOSE #CH
DF 30200 RETURN
```

*Program 2 - Screen Load*

# SLIDESHOW

This is an old program I wrote for Page 6 back in 1985. I have modified it to work correctly with the screen load subroutine. When you have typed both listing 2 and 3 and have them saved to disk carry out the following. Load program 2 and save it using LIST. Load program 3. Enter program 2. You will now have both programs combined.

I will only outline the way program 3 works. It reads the directory of the disk and stores all filenames with an extension in the form .PIC in the string B$. It then takes each filename in turn and passes it to the screen load subroutine which then recovers the data and displays the screen. After a short delay the next screen is displayed. When all the files have been used an error occurs which is trapped by line 80 starting the whole process over again, so the effect is a continuously running slide show.

```
WO 1 REM ********************************
JT 2 REM ***         SLIDESHOW        ***
UO 3 REM ***   by IAN FINLAYSON       ***
RG 4 REM ***       August 1985        ***
PF 5 REM ***    Modified July 91      ***
WT 6 REM ********************************
NM 7 REM
FZ 20 DIM F$(14),A$(17),B$(510):Q=256:F$(
   1,2)="D:":SCRNLOAD=30000
NH 29 REM * OPEN IOCB #2 AND RETRIEVE ALL
          FILES WITH .PIC EXTENDER INTO
          B$
KS 30 TRAP 230:OPEN #2,6,0,"D:*.PIC"
UB 40 Z=0
NO 50 INPUT #2,A$:Z=Z+1:B$(17*Z-16,17*Z)=
   A$:IF A$(5,8)="FREE" THEN 70
SX 60 GOTO 50
KO 70 CLOSE #2:IF Z=1 THEN 230
AD 79 REM * GET A FILE NAME FROM B$
JN 80 Z=0:TRAP 80
SJ 90 Z=Z+1:A$=B$(17*Z-16,17*Z):F$(3,14)=
   "            "
NJ 100 F$(3,10)=A$(3,10):FOR N=4 TO 11:IF
    F$(N,N)=" " THEN F$(N,N+3)=".PIC"
HR 110 NEXT N
US 200 GOSUB SCRNLOAD
LM 220 FOR DELAY=1 TO 1000:NEXT DELAY:POK
   E 77,0:GOTO 90
PH 229 REM * WRONG DATA DISC!
ZB 230 GRAPHICS 0:? "K↓↓NO PICTURE FILES
   ON THIS DISK":? "↓↓SELECT PICTURE DATA
    DISC AND RUN AGAIN":END
```

*Program 3 - Slideshow*

# TAPE USERS

You may think that the description above relates only to disk users. This is not so. The first two listings will work with cassette if you use the file name "C:" instead of "D:FILENAME-.EXT". There is a hitch, however, you must be a bit patient. Data transfer to and from tape is not nearly as fast as disk. It is even possible to run a slide show from tape as long as you set up a tape with a series of graphics saved one after the

***continued on page 39***

# DOUBLE DISK BONUS

## TWO GREAT BONUS GAMES THIS ISSUE!

# PLOP

### by Neil Ottaway

## A one or two player challenge

Plop is a game for one player or two players playing simultaneously on separate scrolling screens. One player is a ball and occupies the top half of the screen while the other player is a hole on the bottom half of the screen. In one player mode the player can alternate between the two modes by pressing the space bar.

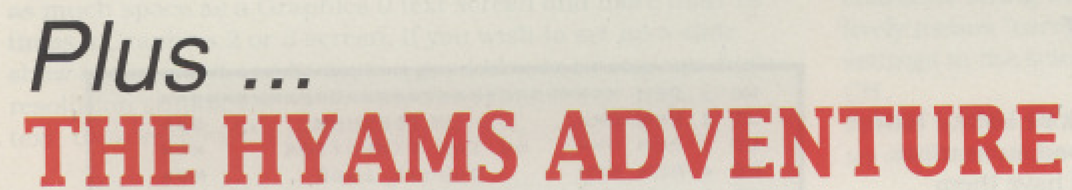
The object of the game is to get the ball into the hole. This, however, is not easy since there are walls and expanses of water in the way. The ball or hole can be guided through the maze using a joystick. A life is lost by guiding the ball into the sea or into a gap. Also a life is lost when time runs out or if you press ESC to quit that level if you become stuck. If any of the above occur you will be restarted at the beginning of the level if you still have lives left.

Around the maze may lie switches with either a number 1 or a number 2 on them. The different switches may either place walls in certain places or place pieces of floor in certain places. Switches must be used to complete most levels. Some switches you may wish to avoid which can be done by picking up a spring by pressing P. If you are already carrying an object then it will be swapped with the object that you are on. To drop an object you should hold down the fire button and press one of the cursor keys depending on whether you wish to drop the object to the left or right or above or below you. You cannot drop an object directly underneath you.

On dropping the spring and passing over it you will be propelled into the air for a short while enabling you to miss a switch and go over it as if it were not there. You can also pick up bombs which blow holes in walls and there are also pieces of floor you can use to bridge gaps over water or holes. Sometimes you may wish to pass an object from one player to the other which can be achieved by dropping an object on a sucker.

Each level is complete when the ball and the hole meet. There are 10 levels altogether each with its own devious puzzle to solve. When all levels are completed there is a graphics demo to enjoy. Music can be turned on and off by pressing the M key. There is also a cheat mode which can be activated by pressing CONTROL-C. You can then proceed to the next level by pressing CONTROL-N.

*PLOP is an excellent game written in compiled Turbo Basic. You really ought to see it to discover just what Turbo Basic can do - it's as good as machine code!*



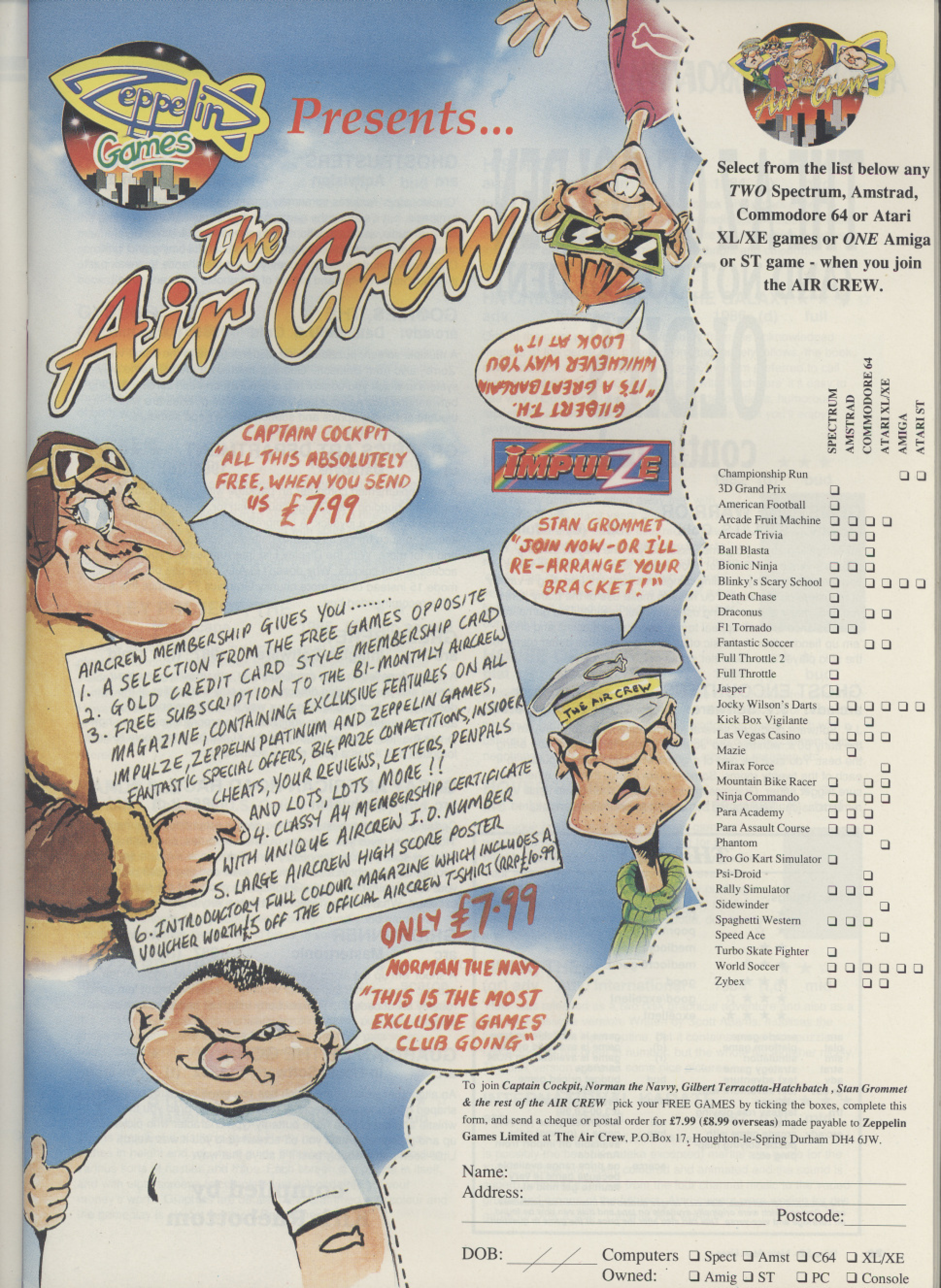
# Plus ...
# THE HYAMS ADVENTURE

### by Yohannan Hyams

A traditional text only adventure which starts out in the author's bedroom. You must understand and investigate everything you see to discover just what sort of life this Hyams guy leads. Along the way you'll find many things to help and many clues to lead to the ultimate objective. What that is you'll discover as you go along. There is no help on this one, you're on your own!

The Hyams Adventure is an excellent fast response adventure written with AdventureWriter and has many unique features and puzzles to solve.

*Issue disk 52 is included with Disk Subscribers copies this issue but can also be purchased separately for just £2.95. Order your copy form PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR or by telephoning 0785 213928 and using you credit card.*



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| 3D Grand Prix | ❑ | | | | | |
| American Football | ❑ | | | | | |
| Arcade Fruit Machine | ❑ | ❑ | ❑ | ❑ | | |
| Arcade Trivia | ❑ | ❑ | ❑ | | | |
| Ball Blasta | | | ❑ | | | |
| Bionic Ninja | ❑ | ❑ | ❑ | | | |
| Blinky's Scary School | ❑ | | ❑ | ❑ | ❑ | ❑ |
| Death Chase | ❑ | | | | | |
| Draconus | ❑ | | ❑ | ❑ | | |
| F1 Tornado | ❑ | ❑ | | | | |
| Fantastic Soccer | | | ❑ | ❑ | | |
| Full Throttle 2 | ❑ | | | | | |
| Full Throttle | ❑ | | | | | |
| Jasper | ❑ | | | | | |
| Jocky Wilson's Darts | ❑ | ❑ | ❑ | ❑ | ❑ | ❑ |
| Kick Box Vigilante | ❑ | | ❑ | | | |
| Las Vegas Casino | ❑ | ❑ | ❑ | ❑ | | |
| Mazie | | ❑ | | | | |
| Mirax Force | | | | ❑ | | |
| Mountain Bike Racer | ❑ | | ❑ | ❑ | | |
| Ninja Commando | ❑ | ❑ | ❑ | ❑ | | |
| Para Academy | ❑ | ❑ | ❑ | | | |
| Para Assault Course | ❑ | ❑ | ❑ | | | |
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| Sidewinder | | | | ❑ | | |
| Spaghetti Western | ❑ | ❑ | ❑ | | | |
| Speed Ace | | | | ❑ | | |
| Turbo Skate Fighter | ❑ | | | | | |
| World Soccer | ❑ | ❑ | ❑ | ❑ | ❑ | ❑ |
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# THE A-Z OF GOLDEN (AND NOT SO GOLDEN) OLDIES continued

## GEMSTONE WARRIOR ★ ★ ★ ☆
**arc/adv. S.S.I./U.S. Gold 1987 (d) full**

An enthralling strategic game, essentially a one player, thinking person's version of 'Gauntlet'. Your quest for the Gemstone takes you through four-way scrolling dungeon chambers (meeting a variety of monsters on the way). You have to make use of the many items you find, many of them being used for spell casting. This game has a great balance and will appeal to role players, strategists and shoot 'em up fiends alike. A classic of its kind, and a much better game for the solo player than 'Gauntlet' could ever aspire to be.

## GHOST ENCOUNTERS ★ ★ ★
**arc/adv. J.V. Software 1981 (t) scarce**

J.V. Software produced several arcade adventures for the Atari in the early 80's, with this and 'Journey to the Planets' probably being the best. You take the part of a ghost who must solve a puzzle in each of the twenty rooms. Some require logical thinking, others a sure trigger finger. Graphics are simplistic, but the game itself remains as challenging and stimulating as when it first appeared.

### THE KEY

Star Ratings:-

| | |
|---|---|
| ★ | poor |
| ★ ☆ | poor/mediocre |
| ★ ★ | mediocre |
| ★ ★ ☆ | mediocre/good |
| ★ ★ ★ | good |
| ★ ★ ★ ☆ | good/excellent |
| ★ ★ ★ ★ | excellent |

| | | | |
|---|---|---|---|
| arc | arcade game | (t) | game is available on tape |
| plat | platform game | (d) | game is available on disk |
| sim | simulation | (r) | game is available on ROM cartridge |
| strat | strategy game | | |
| adv | text adventure | bud | budget priced game (£1.99-£2.99) |
| gr adv | text adventure with pictures | mid | mid-priced game (£3.00-£8.99) |
| frp | fantasy role playing game | full | full priced game (£9.00+) |
| arc/adv | arcade game with puzzle solving/mapping etc. | imp | game is (or was) only available on import from America |
| | | scarce | no price range available, because game is very difficult to get hold of |

*The price and format (tape, disk etc.) ranges quoted are intended as guidelines only. Games which were originally available on tape and disk can now be found on cartridge and vice-versa. This can also alter the price of the game in question.*

## GHOSTBUSTERS ★ ★ ★
**arc Activision 1984 (t,d) mid**

'Ghostbusters' features some nifty music, good graphics and speech synthesis, but it's a pity the gameplay did not quite match up to its obvious audio visual attractions. You choose a car, travel city streets, and trap ghosts (trapping requires careful timing and luck). Once you've made enough money you get the chance to sneak past the Marshmallow Man and get rid of the ghosts once and for all.

## GOONIES, THE ★ ★ ☆
**arc/adv. Datasoft/U.S. Gold 1985 (t,d) mid**

A multiple screen, puzzle solving platform game in the same vein as 'Zorro', also from Datasoft. 'Goonies' features a unique game play system in which you control two characters on each screen, flipping between the two via your joystick button. The puzzles are well thought out and graphics and sound are of a good standard.

## GRAPHICS ART DEPARTMENT ★ ★ ★
**ut Databyte 1986 (d) full**

A well implemented computer art package with all the features (and more) the budding Van Gough could wish for. Drawing is accomplished by using a joystick. A comprehensive help menu gives access to such things as palette, patterns, editors, zoom, brushes and a lot more. With the Display List Interrupt feature you have access to 128 colours. Why doesn't G.A.D. make use of Graphics mode 15 instead of the more chunky Graphics 7? Despite this it is still a recommended buy.

## GREEN BERET 
**arc Imagine Software 1987 (t) mid**

A poorly done left to right scrolling shoot 'em up with one colour sprites and poor collision detection. You play the soldier of the title, dodging, shooting and knifing your way past the never-ending assault of guards out to tan your hide. The programmers know how to use the fine scrolling features of the XL/XE but they seem to have forgotten that it has a good quality sound chip.

## GREAT AMERICAN ROAD RACE ★ ★ ★ ★
**arc Activision 1985 (t,d) mid**

Certainly one of the best car racing games around for your machine. 'Road Race' gives you a choice of different routes, each with different scenery. You may find yourself driving at night, in snow, through fog, caught in a rush hour, or even dodging repair signs in your race against the clock. Graphics are good, but the sound is excellent. What's more, 'Road Race' rates very high in playability.

## GRIDRUNNER ★ ★ ☆
**arc Mastertronic 1987 (t) bud**

A shoot 'em up set along a grid which fills the entire length of the screen. Programmer Jeff Minter wrote this addictive shoot 'em up in roughly 5K of code! Don't expect any frills, just enjoy the fast-paced action.

## GUARDIAN OF THE GORN ★ ☆
**arc In-Home Software 1982 (t) scarce**

An altogether weird game which has you travelling across an oddly shaped grid, avoiding insects. If they manage to grab you they whistle and out pops a huge butterfly-type character who picks you up and presumably eats you off-screen (told you it was weird). Little-seen and probably best if it stays that way.

**compiled by Kirk Ruebottom**

### GUN LAW ★ ☆
**arc Mastertronic 1987 (t) bud**

A pretty dire attempt at a conversion of the 'Commando' game from the arcades of a few years ago. It has you controlling a guy with a machine gun, shooting everything that moves over the vertically scrolling jungle landscape. Sound is of the 'ping' variety and you can only move and shoot in four directions (a serious limitation in my books).

### GYRUSS ★ ★ ★
**arc Parker Brothers 1984 (r) mid**

A solid, no-frills, all action shoot 'em up. 'Gyruss' finds you blasting your way from planet to planet with a superb rendition of 'Tocatta' hammering away in the background. The action is similar to 'Space Invaders' or 'Galaxians', only with much faster and freer movement of both your spaceship and the aliens.

### HACKER ★ ★ ★
**arc/adv. Activision 1985 (t,d) mid**

An entertaining and unusual game, which, after loading, presents you with a screen containing two words, "Logon Please". Eventually you'll find yourself studying a map of the world and directing a robot to various locations in order to bargain with spies of different nationalities. The instructions included with the game are almost non-existent. It is up to you to find out how to play the game. 'Hacker' fares pretty well in the graphics and sound department.

### HALLEY PROJECT, THE ★ ★ ★
**sim Mindscape 1985 (d) imp scarce**

A space exploration game, in which you must journey to various planets and moons in our Solar System, from your mission base inside Halley's Comet. Views are of the 3-D variety and there are some impressive graphics as you gradually approach a planet. However, all this would look better on an American T.V. set as some of the graphics are artifacted. All in all a fairly interesting and challenging space exploration game, but with limitations in long-term interest.

### HARDBALL ★ ★ ★ ★
**arc/sim Accolade/U.S. Gold 1986 (t,d,r) mid**

This is an excellent implementation of Baseball on home computer. The main game screen shows a close-up view from behind the pitcher, with large colourful graphics depicting batsman, pitcher, umpire and backstop. You have a variety of pitching and batting options to choose from. Once struck, the ball flies off this screen and you then see a view of the outfield from where you direct your fielders or runners. Many subtleties in design, and good gameplay combine to produce an enthralling piece of software.

### HAZZARD RUN ★ ★
**arc Artworx 1983 (t) scarce**

Remember the 'Dukes of Hazzard' series of a few years back? Well, this simple overhead view, vertically scrolling game puts you in the shoes of Bo and Luke Duke as they dodge their car past trees, rocks, ducks, rivers etc. Pretty shallow, but then again so was the T.V. series.

### HENRY'S HOUSE ★ ★ ★ ☆
**plat Mastertronic 1987 (t) bud**

This is a gem of a platform game. Henry has shrunk to about six inches in height and you must guide him about his house, avoiding various sorts of nasties and traps. Each screen is a puzzle in itself, and with eight screens to complete you will certainly get your money's worth. Graphics are detailed and crammed with colour and the gameplay is almost faultless. Recommended.

### H.E.R.O. ★ ★ ★
**arc Activision 1984 (r) mid**

In H.E.R.O. you control a guy with a jetpack who enters mines to trap rescued miners. You have to dodge radioactive fields and walls and shoot any aliens you might find. There are many nice features in this shoot 'em up/platformer, notably the bright and colourful graphics and the challenging gameplay.

### HITCHIKER'S GUIDE TO THE GALAXY ★ ★ ★ ☆
**adv Infocom 1986 (d) full**

One of the most popular text adventures from the acknowledged masters of the genre. It's based upon, and loosely follows, the book, radio and T.V. series of the same name. Infocom preferred to call their adventures 'interactive fiction' and with 'Hitchikers' it's easy to see why. Huge vocabulary, atmospheric descriptions, humorous replies, it's all here. If you liked the T.V. series then you'll enjoy playing this.

### HOME FILING MANAGER ★ ★ ★
**ut Atari 1982 (d) bud**

This handy utility was given away free with Atari disk drives many years ago. It's a fairly versatile, extremely easy to use, record keeping utility cum database. Information you wish to record is displayed on screen as a card. These 'cards' can be saved to disk, sorted and indexed etc. and re-displayed at the press of a few buttons. A bit limited for the more serious user, but useful nonetheless.

### HOUSE OF USHER ★ ★
**plat Kingsoft/Midas 1986 (t) bud**

A fairly average platform game with some original ideas for content, but spoilt by poor programming. You control a pixie sort of character who must battle his way through nine platform screens, each with a different theme or puzzle. Challenges include dodging cannon balls, negotiating your way over unsafe floors, dodging meanies etc.

### HOVER BOVVER ★ ★ ☆
**arc Llamasoft/Mastertronic 1984/1987 (t) bud**



An unique but eventually monotonous game in which you must mow lawns, watch out for angry neighbours, and restrain your dog at the same time! Your view of the (very highly coloured) events is from above. Mowing is accomplished by pushing the joystick, and your dog is controlled by the fire button. Factors include mower overload, dog loyalty and obedience!

### HULK, THE ★ ★ ☆
**(gr) adv Adv. International 1984 (t,d) mid**

'Hulk' was released as a two disk graphical adventure and also as a text-only cassette version. Written by Scott Adams, it utilises the limited verb-noun input routine, but it contains some nice puzzles. Locations are not great in number, but the whole fits together nicely. The disk version contains some nice pictures.

### INTERNATIONAL KARATE ★ ★ ★ ★
**arc System 3 1987 (t,d) mid**

An efficiently programmed and well-designed piece of software. This is possibly the best ('Karateka excepted) martial arts game for the XL/XE. Sprites are nicely coloured and animated and the sound is superb, whether it ranges from the four channel music to the varied grunts and groans of the fighters. Atari owners were waiting for this game for over a year. The wait was worth it.

# A-Z OF ATARI SOFTWARE

### INVASION ★★
strat Mastertronic 1987 (t) bud

Unusual wargame, set on an alien planet, with your objective being to destroy the aliens' weather station. Commands for your units are entered with the joystick. Although there is much of interest for wargamers here, 'Invasion' is let down by some poor graphics and terrible scrolling.

### JAMES BOND ★
arc Parker Brothers 1984 (t,r) mid

An altogether dreadful piece of software. It's a horizontally scrolling blast, with you controlling Bond in his speedboat, firing at everything that moves. Poor controls, tedious gameplay.

### JAVA JIM ★★★
arc Creative Sparks 1986 (t) bud

You control Jim who jumps about on a grid map of a desert island in search of valuable tools and relics for his archaeological expedition. But you have to watch out for lava which is spat out by the mountain in the centre of the screen. An interesting little game with many subtleties and unique gameplay. Alternately frustrating and refreshing, it is worth more than its budget price.

### JET BOOT JACK ★★★
plat English Software 19- (t) bud
83

A delightful game which was deservedly awarded minor classic status. Jack is propelled by his jet powered boots, and he collects all the musical notes from each screen whilst trying to avoid the many hazards at the same time. Bright, clear graphics and addictive gameplay make 'Jack' a winner.

### JET SET WILLY ★
arc Tynesoft 1986 (t) bud

Tynesoft obviously had no idea of the Atari machine's capabilities when they attempted to convert this best-selling Spectrum game. You have to move Willy over numerous rooms in an attempt to collect all the glasses from the previous night's party. The only redeeming feature of 'Willy' is that it features an excellent musical soundtrack.

### JOURNEY TO THE PLANETS ★★☆
arc/adv. J.V. Software 1981 (t) scarce

Another puzzle solving arcade adventure from the makers of 'Ghost Encounters'. This game has the puzzles of a text adventure but solving them requires moving a sprite through various screens. Graphics are very basic and blocky, but 'Journey to the Planets' makes up for this with its excellent design and gameplay.

### JOUST ★★☆
arc Atari 1982 (r) mid

An amusing game in which each player is mounted on a bird, lance in hand, and the objective is to knock the other player (human or computer) from his bird. You can either charge at the other competitors or drop down on top of them. Flying is accomplished by pressing the joystick button in time with the bird's wings. Nothing spectacular in the graphics and sound departments, but 'Joust' is entertaining and playable nonetheless.




### JUMBO JET PILOT ★☆
sim Thorn E.M.I. 1982 (r) scarce

This flight simulator has not worn the years as well as its contemporary, 'Submarine Commander' (also from Thorn E.M.I.). It does have very good detail and is challenging to fly, but terrible graphics and sound can't really compensate for this.

### JUMPJET ★★
sim Anirog Software 1986 (t,d) mid

A rather uninspiring flight simulator which has you taking off and landing from an aircraft carrier and in pursuit of enemy planes. The emphasis is more on simulator than arcade, with options controlling thruster positions, radar, navigation etc. Instructions for the game are abysmal and the game is very difficult to get to grips with.

### JUNGLE HUNT ★★☆
arc Atari 1982 (r) mid

An amusing game, especially good for the kiddies, played over four stages. Stage one finds you swinging from tree to tree, Tarzan style, and you must time your leaps correctly. The second stage takes place underwater and you must avoid the crocodiles. Stage three has you jumping over lumps of molten lava, and in the final stage you must rescue the damsel from the cannibals' cooking pot.

### JUNO FIRST ★★
arc Datasoft 1984 (d) mid

A rather dated 'Space Invaders' derivative with a pseudo 3-D effect and aliens coming at you from all directions. Nothing at all special here; just another average shoot 'em up'. Datasoft released games of much better quality.

### JUPITER MISSION ★★☆
arc/adv. Avalon Hill 1983 (d) scarce

Considering that this big game (it occupies two double sided disks) was written in Basic, it is reasonably impressive. You're in control of a spaceship, the 'Space Beagle', and you must navigate your way through space, avoid meteor storms, send out shuttles to planets, repair ship damage etc. There's a fair amount of disk access and graphics are a bit blocky, but the game is not without merit.

### KAMPFGRUPPE ★★★
strat S.S.I. 1985 (d) full

Another immensely detailed and complex S.S.I. wargame. This time out the action takes place at platoon level in World War II. As with most S.S.I. wargames, the graphics play second fiddle to the wealth of game options and commands. Recommended for the wargamers among you.

### KARATEKA ★★★★
arc Broderbund 1985 (d) imp scarce

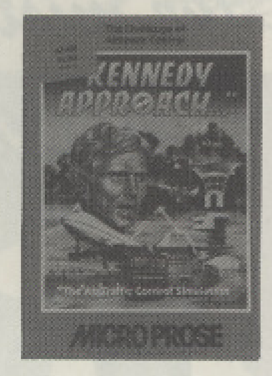
Graphics in 'Karateka' are works of art, indeed the whole game oozes quality, from the opening narrative sequences to the final embrace of hero and Princess. This martial arts game employs movie-style cutaway techniques where the screen may show your character running along, and then cut to a shot of your opponent rushing to meet you. Controls are initially hard to get used to, but simplicity itself once mastered. It's a crime that this, the best martial arts game for the XL/XE, was never easily available here in the U.K.

### KAYOS ★
arc Computer Magic Ltd. 1981 (t) scarce

A primitive (and extremely rare) shoot 'em up, one of the first games I ever bought. Put simply, a fast space invaders clone, with flashy sound effects.

### KENNEDY APPROACH ★★★☆
**sim Microprose 1985 (t,d) full**

'Kennedy Approach' is a simulation of air traffic control. You won't be impressed by the graphical display (a simple radar map with aircraft and airport symbols), but what you WILL be impressed by is some high quality speech synthesis. It certainly adds much to the atmosphere and authenticity of the game, and there is a wide variety of phrases to be heard. Take away the speech synthesis and you are still left with a riveting simulation. What more could any aspiring air traffic controller wish for?




### KICKSTART ★★☆
**arc Mastertronic 1986 (t) bud**

An okay motorcycle obstacle course game, based on the T.V. series of the same name. The game uses a split-screen technique, so you and a friend can race at the same time. Your view of the course is a two-dimensional one, taken from the side. The obstacles include water, rough ground, vehicles and brick walls. Quite good fun, and well worth its budget price.

### KILLER CYCLE ★
**arc Microvalue 1987 (t) bud**

This was part of the 'Four Great Games Vol. 2' compilation and is probably the worst of the bunch. It claims to be a recreation of the Light Cycle sequence from the film 'Tron'. In reality it's nothing more than a jazzed-up collision detection routine, where you guide a moving line with your joystick, and try not to collide with the other moving lines of the human or computer players.

### KING OF THE RING ★★
**strat Gremlin Graphics 1986 (t,d) mid**

A key-pressing strategy game about boxing. You choose your boxer's training, opponent, and fight strategy. During the fight you get chances to allocate points to tactics for the forthcoming round. Then it's just a matter of watching the boxers slug it out (in wire-frame graphics).

### KNOCKOUT ★★
**arc Anco Software 1986 (t,d) mid**

A poorly-done boxing game lacking in almost every department. Moves for your boxer, issued by the joystick, are very limited. Graphics are basic and the sound resembles waves at the seaside. This one is best to avoid. If you want a decent boxing game then look no further than 'Fight Night' from U.S. Gold.

### KORONIS' RIFT ★★★☆
**arc Lucasfilm/Activision 1986 (d,r) full**

This game employed the fractal graphics techniques used in 'Rescue on Fractalus' to even greater effect. In fact, 'Koronis Rift' has the distinction of being one of the most graphically pleasing games EVER to be released for the Atari XL/XE. You're a techno-scavenger, looting your way across the planet, utilising items found in battered hulks that were once spaceships. Your 'out of the cockpit' view shows you the surrounding terrain as well as the numerous flying saucers who are out to liquidate you. A very involving game, with equal emphasis on shooting, tactics, exploration and navigation.

TO BE CONTINUED

### L.A. S.W.A.T. ★★☆
**arc Mastertronic 1987 (t) bud**

You're a S.W.A.T. team leader, shooting down terrorists in this vertically scrolling 'Commando' inspired shoot 'em up. Buildings, overturned cars and city streets take the part of jungle here though. If you like this type of game then you could buy worse ('Gun Law' for example).

### LAPIS PHILOSOPHORUM ★★★
**gr adv Ariolasoft 1986 (d) mid**

Nice graphical adventure with a fantasy theme. The parser will only accept verb-noun entries, but is adequate nonetheless. The pictures are nicely drawn, and puzzles are a little on the easy side.



### LAST V.8., THE ★★☆
**arc Mastertronic 1987 (t) bud**

This game features nice graphics and sound, but is very hard to get to grips with. You have to guide your car through bombed-out streets (a nice overhead view) in a race against the clock. Control of your car is difficult, and that's putting it mildly. However, persevere, and you'll find yourself coming back to this time and time again in your quest to find the correct route to the next stage.

### LEADERBOARD ★★★☆
**sim Access/U.S. Gold 1986 (t,d) mid**

Probably the best golf game for your computer. The only scenic features are fairway, putting green and water hazards, but the three dimensional views and playability make up for this. Factors include hook, slice, power, wind and slopes. This is a game which appeals to both young and old alike. Now why didn't they convert 'World Class Leaderboard' to the Atari machines?

### LITTLE DEVIL ★★
**arc Red Rat 1988 (t,d) mid**

A mediocre offering from one-time reliable Red Rat. 'Little Devil' was supposedly banned in some outlets because of its alleged occult content (don't make me laugh). It's a platform type game in which you time your leaps to rescue suspended souls and avoid the customary baddies. The backdrops are nicely drawn, but we've seen the gameplay a thousand times before.

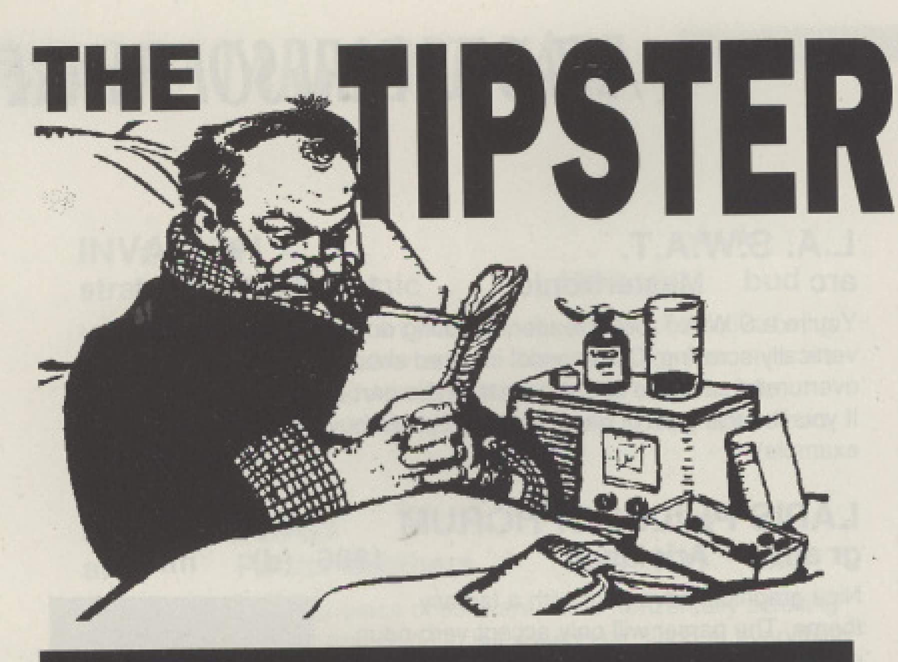
### LIVERPOOL ★★
**strat (Mail Order only) 1984 (t,d) scarce**

A text-only football manager type game, written in Basic, which used to be available from an advertiser in Page 6 magazine some years ago. It features such things as transfers, player skill and stamina and finances. Things progress a little slowly (mostly due to the lengthy disk accesses), but it is fairly interesting if you like football management games.

### LIVING DAYLIGHTS, THE ★★
**arc Domark 1987 (t,d) mid**

Yet another multi-screen scrolling shoot 'em up. This is from the same team who programmed 'Green Beret' (see elsewhere). They did a slightly better job with this one, but the game still remains flat and monotonous. You're James Bond, shooting, dodging and eliminating his way through horizontally scrolling scenic levels of play. You have a variety of weapons with which to complete these tasks and you must choose the correct weapon for each stage.

# THE TIPSTER



## *The mists clear and the reality is revealed ......*

*Terminator 2 has swept away the competition in the cinemas, the month is now September A.D. 1991 and it's time to assault the software charts with all of those games that are set to supposedly storm the charts in time for the Christmas rush. But we'll bring you all down to the enjoyable bit of the games scene, that's right the Tipster business!*

*Another timeframe another Tipster section, bursting at the seams this time with a multitude of hints, tips and bits 'n' bobs. We have a map of Yogi Bear and Friends in the the Greed Monster. Solutions to Lancelot, Agent 009, and a complete blow out of HACKER.*

## LASER HAWK

has an expose courtesy of Jonathan Burroughs of Peterborough. Here's his advice. If you have an auto-fire joystick it would be helpful to turn it on. If you are being blown into little pieces by the cannons, just shoot the bullets of the cannon in question and it won't shoot any more. Instead of going in low to shoot the buildings all you have to do is push the joystick to the right and it will fire at the ground. On the higher levels you will come across the mad bomber which will kill you if you are low, so when it does come, fly to the top of the screen straight away then it will not be able to destroy you. Finally the missiles which follow you and destroy you can be shot down by flying low at the left hand side of the screen and waiting for them to head straight for you, when they do they are in position for you to shoot and destroy them.

## SPINDIZZY, JOE BLADE II

**prove a little easier due to Kristian Batowski of Aberdare.**

**In SPINDIZZY, when selecting your shape select the ball, as it bounces higher on trampolines. Don't be tempted to go hunting for jewels as they waste more time than they give you back, it is wiser to find new rooms as they are worth more time. Use the map often to see which directions you can go and study the (H) Help screen.**

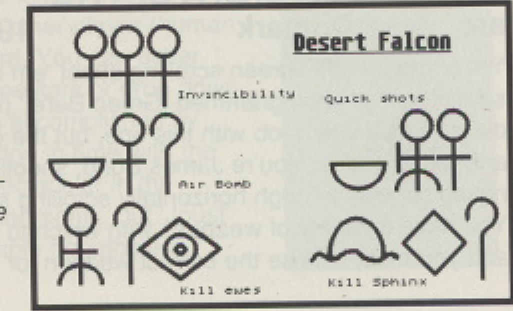
**10 bins = 15 extras keys and 3,000 points in JOE BLADE II. If you find food leave it until your energy is low, it won't move.**

**Try to map the rooms for future games so as not to get lost.**

**One last tipperooney and probably the best of the lot is that if you hold down SHIFT,OPTION and BREAK together on the title screen you will have infinite energy.**

## DESERT FALCON

*just became easy blasting when you use these 5 hieroglyphics to start you off:*




# HACKER

HACKER has been smashed by Sean LeBrecque who hasn't enclosed his address (if you contact Page 6 and tell them what kind of paper its on and how you wrote the letter then you can have your badge). O.K. that's the admin bit over so let's get on with the well 'ard bit.

The **LOGON** password is **AUSTRALIA**

The four security checks are:

1) **Magma, LTD.**
2) **AX-0310479**
3) **Hydraulic**
4) **Australia**

This first part is the order in which to go to the countries and what to take and give.

| CITY | WHAT TO GIVE | WHAT TO BUY |
|---|---|---|
| 1) SWITZERLAND | $5000.00 | EVERYTHING |
| 2) EGYPT | CHRONOGRAPH | EVERYTHING |
| 3) ROME | SCARAB | NOTHING |
| 4) INDIA | TUT | NOTHING |
| 5) NEW YORK | SWISS CHALET | BONDS |
| 6) TOKYO | BONDS | EVERYTHING |
| 7) CHINA | PEARLS | JADE |
| 8) CUBA | JADE | NOTHING |
| 9) LONDON | CAMERA | BEATLES ALBUM |
| 10) SAN FRANCISCO | BEATLES ALBUM | NOTHING |
| 11) WASHINGTON | GIVE F.B.I. AGENT DOCUMENT | |

The following is a list of the moves required to move from the first city. All of these moves are in order from the city to the last city in the format <# OF MOVES><DIRECTION> so that move 6 north is 6N. To use these you have to first get to Switzerland.

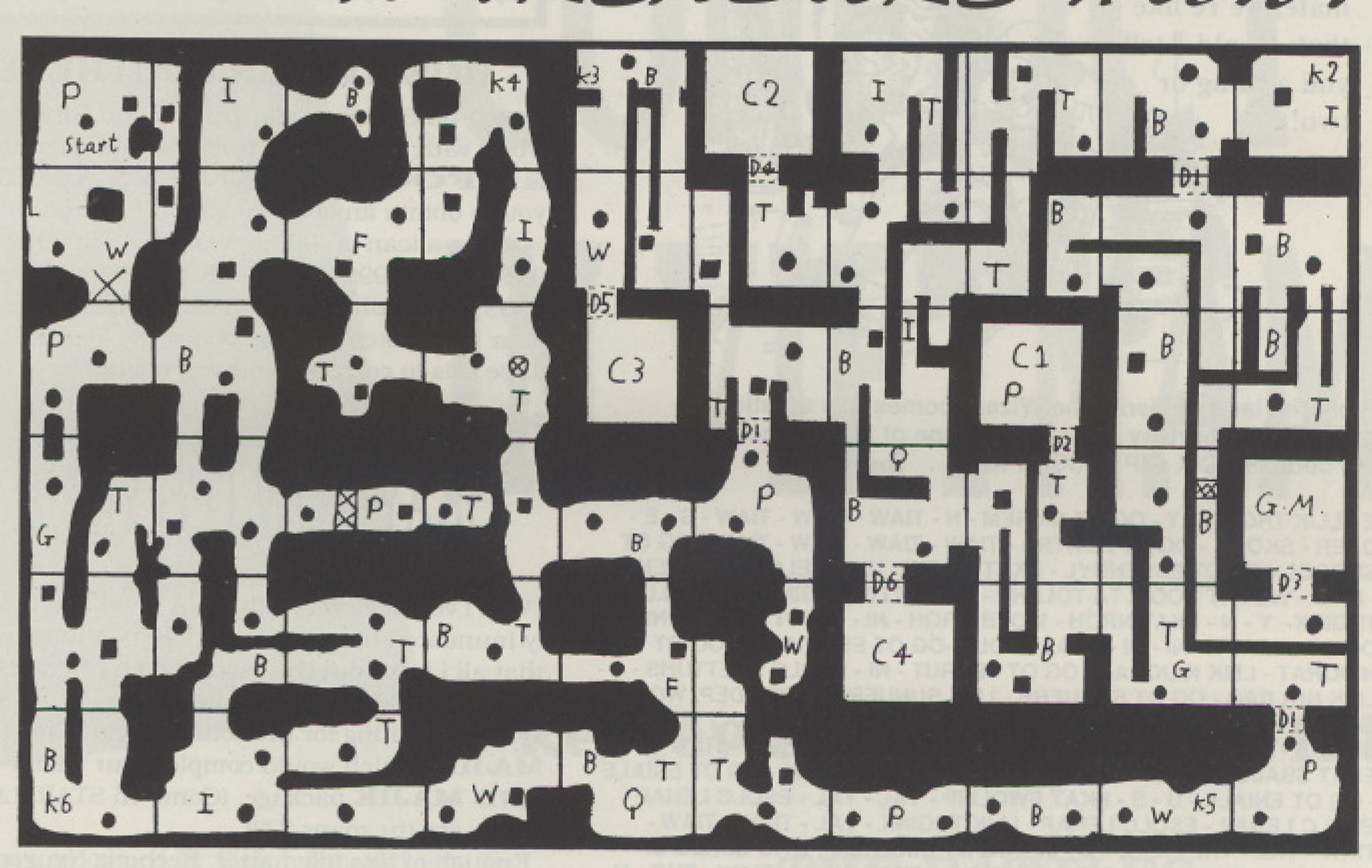
| CITY | DIRECTIONS |
|---|---|
| SWITZERLAND | 6E, 4N |
| EGYPT | 4W, 1N, 6E, 2S, 1E |
| INDIA | 1E, 2N, 2E, 3S, 1E |
| NEW YORK | 1W, 3N, 16W, 1S |
| TOKYO | 6W, 1N, 14W, 2S, 5E |
| CHINA | 4W |
| CUBA | 1E, 3S, 2E, 1N, 4E, 1S,2E, 1S, 2E, 1S, 8E, 3N |
| LONDON | 8N, 2N, 2W, 1N, 3E |
| SAN FRANCISCO | 3W, 2S, 12W, 1N, 1E |
| WASHINGTON | 1W, 1S, 10E, 2N, 2W, 1S, 3W |

***CONGRATULATIONS YOU HAVE JUST COMPLETED HACKER***

If you complete this game, it then prints the front page of a newspaper on your printer so make sure that its on-line and has plenty of paper. If you haven't got a printer then it doesn't do much at all which I think is a bit unfair don't you?

# YOGI BEAR AND FRIENDS IN THE GREED MONSTER - A TREASURE HUNT

**Mapped by Richard Gore**




## Key:

| | |
|---|---|
| B | **Blue Pot of Money** (you must collect all of these) |
| I | **Jar of Honey** (makes Yogi invincible) |
| W | **Jar of Sweets** (provides extra ammo) |
| P | **Picnic Basket** (replenished food bar) |
| T | **Toys** (you must collect all of these) |
| G | **Bubble Gum** (sticks Yogi to one spot for a while) |
| φ | **Balloon** (follows Yogi and can't be killed) |
| K1, K2 | **Key one, key two etc.** |
| D1, D2 | **Door one, door two etc.** |
| ● | **Enemy that moves horizontally** |
| ■ | **Enemy that moves vertically** |
| C1 | **Room that contains trapped Boo Boo** |
| C2 | **Room that contains trapped Snaggle Puss** |
| C3 | **Room that contains trapped Quick Draw McGraw** |
| C4 | **Room that contains trapped Snoop and Blabber** |
| XX | **Type of door ⊗ needed to remove it** |
| L | **Touch L to remove blockage X to enable access to rest of the game** |

# SMASH, CHOP, BUILD, SPY!

**WORLD KARATE**, **HOT BLOX**, **BOULDERDASH CONSTRUCTION KIT** and **AGENT 009** are the games that are given the once over by Daniel Nye of Bury St. Edmonds.

**AGENT 009** gets the backwards treatment this time with the following gibberish written as DAOL REXIMTNEMEC = LOAD CEMENTMIXER.

**KOOL - ON - TEG - TRATS - TIXE - KOOL - KLAT - SEY - NEPO - DAER -ETALSNART - RETUPMOC - EVAEL - TEG - TRATS - KOOL - KOOL - EVIRD - OBRUT TSOOB - KOOL - LLIK - KOOL - TEG - DAER - NUR - NUR - KOOL - RETNE - KOOL - TEG THGILHSALF - SEY - YUB - EVAEL - KOOL - NRUT - WOLLOF - TEG - NETSIL - NETSIL - EREHW - LLIK - RESAL HCTAW - TEG - KOOL - SSORC - TEG - TRATS - KOOL - KOOL - DAER - SEY - KOOL - KOOL - KOOL - DAER - HSUP - KOOL - KOOL OBRUT - TSOOB - DAER - KOOL - THGIR - NRUT - THGIR - KOOL - TEG - DAER KOOL - LEEF - OTOG - KOOL - LLIK - NUG - KOOL - TEG - TUP - KOOL - OG - TSAE - RETNE - THGIR - KOOL - NEPO - 900 -hE !alioV**

If you are having trouble with **BOULDERDASH**, load up the construction kit, you can then load up each screen and practice them at different speeds and try the things you can alter in the kit.

When a block appears at the top of the screen in **HOT BLOX** just pause the game. This will give you time to think about where to put the block. When you have decided, simply unpause the game.

# SMARTER THAN THE AVERAGE GAMER

To go with this issue's map of **YOGI BEAR IN THE GREED MONSTER** are some hints from the same man Richard Gore of Sprotborough, Doncaster. The hints are as follows:

Touch the green layer marked L. An opening will appear (marked X on the map) to allow you access to the rest of the game.

Before using the opening go back to the first screen and collect the picnic basket if you have not already done so because once you have gone through the opening you will not be able to return to the starting location.

Collect the toys, the blue pots of of money and the sweets as soon as you see them but only collect the pic-nic baskets, jars of honey and cans of of pop when you need them as they are few and far between.

Try to evade the enemies rather than using your ammunition. Only fire the sweets when you really need to as you only get a few.

Collect the blue canister (marked as a circle with a cross inside it on the map) as soon as possible. This removes the blocky blue doors.

Do not swap keys until you get inside the indoor complex as you need key 1 to get inside. Once a door is open it will remain open for the rest of the game .

DO NOT enter the G.M. room (using key 3) until you have collected ALL the blue money pots and toys.

Plan your route carefully (using the map) so as to try to avoid the enemies.

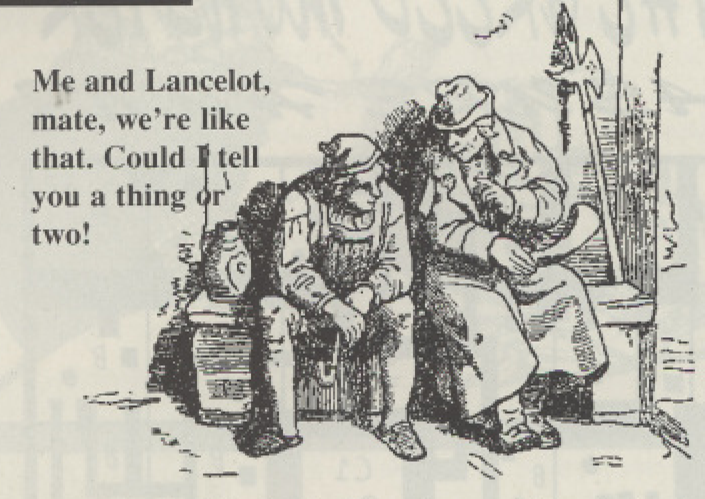
Yogi's food level only goes down when the bottom half of him comes into contact with any of his adversaries. So do not worry if his head or shoulders touch any of the enemies.

Using the hints above and the map you should have no difficulty in completing this excellent game from HI-TEC.

**MORE ... MORE ☞**



The TIPSTER is fading away!




From the land of Merlin the Wizard comes this solution to LANCELOT courtesy of David Gwynne of Llandudno. As always the code is KCIK GIP = KICK PIG.

E - LLIK THGINK - Y - OG OT NILREM - N - TIAW - TIAW - TIAW - S - E - DAER - SKOOB - OG OT RUHTRA - TIAW - TIAW - TIAW - TIAW - OG OT SURGOL - OG OT ESSENOYL - EKAT DOOW - U - U - ELGNATNU SENUL - D - D - WORHT DOOW TA TOLEHP - N - N - LLIK THGINK - Y - N - LLIK THGINK - Y - N - EKAT NROH - WOLB NROH - NI - OG OT ESUOH - NI - OG OT LEPAHC - NI - NI - EKAT HTOLC -OG OT ESUOH - NI - OG OT NIUQRAT - LLIK NIUQRAT - OG OT TERRUT - NI - ESOLC SRETTUHS - LLIK NOLRAG - OG OT SUNUERB - LLIK SUNUERB - EREVIDEP, WOLLOF EM - OG OT SREIRB - THGINK,TIAW,TUC SREIRB,NIAGA - TUC SREIRB - A - N - NAGROM, I ESUFER - TIAW ROF NAGROM - TIAW - EKAT SSALG - TIAW - Y - W - N - NIAWAG, WOLLOF EM - OG OT ENIALE - OG OT ENIALE - U - S - EKAT SWOLLIP - YAL - YAL - ESOLC LENAP - ESOLC LENAP - ESOLC LENAP - LLIK THGINK - YAL - TIAW - TIAW - TIAW - YAL - YAL - N - E - W - W - OG OT DIAMREM - EVIG SSALG OF LESOMAD - THGINK,WAIT,OG OT TNAIG - EKAT PRAH - TIAW - TUO - U - U - THGINK,TIAW,TUP WOLLIP REDNU S'TNAIG DAEH - EKAT KCAS - WORHT CILER TA TNAIG - KCOLNU ROOD - THGINK,TIAW,HSUP ROOD - HSUP ROOD - HSUP ROOD - A - E - SROB, WOLLOF EM - OG OT LEGATNIT - OG OT RETRAC - TEG NI TRAC - TIAW - TIAW - TIAW - TIAW - TIAW - TUO - ENIMAXE ERIF - TUP SLAOC NI NORDLUAC - EKAT NORDLUAC - U - TUP SLAOC NO SLIAS - D - EKAT NORDLUAC - U - TUP SLAOC NO SLIAS - SW - OG OT MARTSIRT - MARTSIRT, YALP PRAH - TIAW - OG OT SEHSUB - TEG NI SEHSUB - SROB, OG OT NOCAEB - THGIL NOCAEB - WOLLOF EM - TIAW - TIAW - TIAW - TIAW - W - NI - W - D - E - KCOLNU ROOD - E - KAROMAL, WOLLOF EM - W - SROB - TIAW - HSUP TSEHC - HSUP TSEHC - D - TUO - N - OG OT RONAM - Y - SROB - TIAW - DLOH LENAP - NI - DNATS NO SKNALP - TIAW - N - Y - NI - KAERB WOBSSORC - EREVIDEP, TIAW - S - SE - N - N - N - N - SROB, TIAW ROF NROH, NRUT HCNIW - LLUP REVEL - NRUT HCNIW - S - S - N - EREVIDEP, EERF ROTCE, NAIRB, LENOIL, HTERAG, SUREHEG - EERF NIAVARGA, SELIDNARB, SUAHRAM, EKUDILA - TEG NI EGAC - WOLB NROH - W - OG OT REVENEUG - TEG NI TRAC - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - OG OT TNUAGAILEM - U - N - N - S - S - W - KOOL NI TSEHC - EKAT SEVOLG, TAH - YAL - YAL - E - D - TUO - W - U - RAEW SEVOLG - D - TIAW - TIAW - S - S - D - LESOMAD, I ESUFER - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - TIAW - SSIK LESOMAD - TUO - TUO - OG OT REVENEUG - LLIK TNUAGAILEM - E - W - E - E - EKAT LOOTSTOOF - SSIK REVENEUG - REVENEUG, TIAW, ESOLC ROOD, NEPO ROOD - NEPO ROOD - TIH ECNUAVAERGLOC THIW LOOTSTOOF - YARP - TUO - OG OT THGINK - THGINK, I MA TOLECNAL - LLIK THGINK - OG OT LESOMAD - NI - EKAM NGIS FO SSORC - NI - OG OT REHCAERP - EKAM NGIS FO SSORC - NI - OG OT TIMREH - EKAT ECILAHC - OG OT LLEW - EVIG ECILAHC OT MIRGLIP - OG OT TSEROF EDIR - S - N - N - OG TO DAHALAG - D - D - LLIK STHGINK - OG OT TAOB - DAHALAG, EKAT DROWS - OG TO BMOT - DAHALAG, EKAT DLEIHS - DAHALAG, NEPO BMOT - LLIK DNEIF - EKAM NGIS FO SSORC - OG OT TAOB - TEG NI TAOB - DAHALAG, OG OT ECNANRUT - WOLB NROH - DAHALAG OG OT ECNANRUT - TIAW - TIAW - U - E - DAHALAG, N, N, N, S, S, S, - S, S, S, N, N, N, -TIAW - KNIRD DAEM - OG OT TAOB - TEG NI TAOB - EKAT NROH - DAHALAG, OG TO DNAS - TIAW - TIAW - TUO - LLIF PUC, ECILAHC - DAHALAG, TIAW, WORHT PUC FO RETAW - WORHT ECILAHC FO RETAW - LLIF PUC, ECILAHC - DAHALAG, TIAW, WORHT PUC FO RETAW - WORHT ECILAHC FO RETAW - LLIF PUC, ECILAHC - DAHALAG, TIAW, WORHT PUC FO RETAW - WORHT ECILAHC FO RETAW - N - LLIF ECILAHC - S - LLIF PUC - TEG NI TAOB - DAHALAG, OG TO YEK - TIAW - U - NI - SROB, TIAW, TIAW, TIAW, WORHT PUC FO RETAW, LAVICREP, TIAW, TIAW, WORHT ECILAHC FO DNAS - DAHALAG, TIAW, WOLB NROH - EKAT YEK - KCOLNU ROOD - E - NI - E - NI ____________ ESIRPRUS, ESIRPRUS UOY EVAH DETELPMOC TOLECNAL ____________

**MAGNIFYING GLASS ANYONE?**

**The TIPSTER forgot to work out who got this issue's prize so we are giving it to Richard Gore for his Yogi stuff. Drop us a line Richard and tell us what £35 of software you would like (how about 35 copies of Kingdom?).**
**There *is* a prize this time but it is a mystery since the Post Office couldn't manage to deliver this column on time and we are smack up against the deadline. Keep sending the tips and we promise to sort something out.**

## HOW TO RUN SOUTHEND UNITED

Leigh-on-Sea must the Tipping and Hinting capital of the world with Yasser Nabi from the aforementioned town. His tip is for **FOOTBALL MANAGER** which enables you to obtain an obscene amount of money.

Obtain a loan of -9999999999999999999999999999999 99999999999999999999999999999999999999999999 9999999 (until you hear a beep), then press RETURN. Play your first match then pay back the loan of £-9.9999999E+17 (type this in correct). Now you should have loadsa dosh.

✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ **Oi! Cut it out!**

# OKAY NOW IT'S YOUR TURN!!!!

Well I've done everything that I can this issue. I was absolutely inundated this issue with letters and maps and I promise that all I leave out this issue which I think is good enough will go into the next issue. (Promise!!!)

I'm still waiting for the solution and maps to **PRICE OF MAJIK**, which would complete our trilogy of the **TIME AND MAJIK** package. (Come on STARFLEET CONTROLLER where are the maps ???)

Enough of this idle natter. Kechong Ngugen needs help on **NINJA COMMANDO**. He wants to know if there are any cheats for lots of lives, skip levels and stuff. Well is there? (That's your cue!) He also wants to know how to get to level 14 of **SPOOKY CASTLE**.

A letter containing the by now obligatory PLEASE, PLEASE, PLEASE has come from Pauline Jillon for help on two older adventures. In **SAN FRANSICO (EARTHQUAKE)** she has got as far as inside of the wrecked hotel with its burnt out safe and planks nailed to the doors and that is as far as she can get. In **CURSE OF CROWLEY MANOR** she can't get past the demon at the numerical locked door. Over to you, Tippers, get those answers rolling in before Pauline goes out of her mind. To those who have asked, yes I would like to repeat some good old tips from issues 1-30 but seeing as The Tipster has only been going since issue 38 it would prove difficult.

Well that's about all for this issue. Don't stop sending in the letters as the column is only what you make it (remember that I'm asking questions later on!). Also don't forget that the **LORDS OF TIME** maps are still readily available from the address in the last issue.

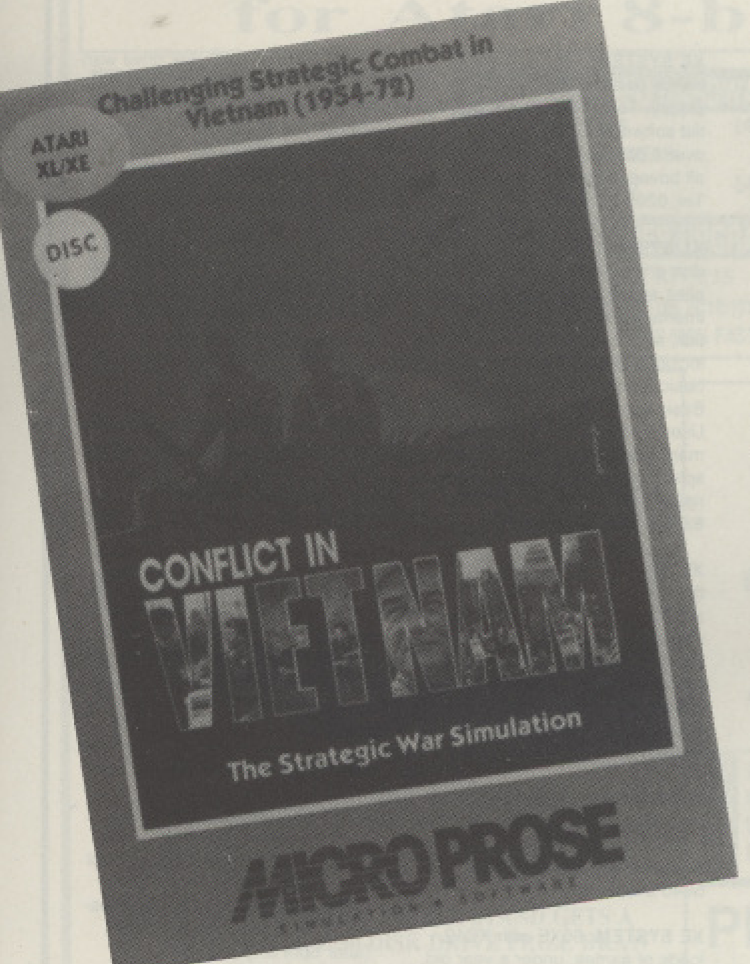
## STOP PRESS ----- STOP PRESS -------- STOP PRESS ---------

There is a Brownie point on offer to the person who spots the **ATARI PORTFOLIO** in TERMINATOR 2. O.K. not hard but there are a zillion points to the person who can get me the program and hardware used in the film for breaking PIN numbers. (Same address as usual, don't forget to send your credit card and its PIN number so that I can experiment).

***Until next time keep gaming.***
***This is The Tipster signing off ............***

**Send your letters and maps and things to:**

**THE TIPSTER,**
**NEW ATARI USER,**
**P.O. BOX 54,**
**STAFFORD**
**ST16 1DR**




# CONFLICT IN VIETNAM

## Reviewed by Steven Wilds

Microprose are renowned for their top quality simulations, the best of which made it to the Atari. Conflict in Vietnam, the last Microprose game for our beloved machine, simulates five decisive battles of the Vietnam War - from the French defeat at Dien Bien Phu in 1954 to Quang Tri in 1972, the start of the end of South Vietnam.

As in most Microprose games, a 'quick start' option is available but extensive reading of the 110 page manual is a must. It contains ample information on the history of the war as well as the game itself and makes an enjoyable read. Instructions are easy to follow and it is not long before you boot up the disk ready to go to war.

Before starting any game you are required to enter an operational 'day' code. These are found inside the manual and serve as protection for the game. You can then select one of the five games and any variants (each game has variants) and choose the number of players and their sides, game speed, standard military symbol or icon display, joystick or keyboard input and play balance which can give one side an advantage over the other. Once all choices are made the game is loaded.

The map size (game area) varies from game to game and controls are very easy to master. First a unit is selected and you then choose one of several commands. Unlike a lot of wargames, Conflict in Vietnam is not divided into turns and phases although it does take time for units to receive and act on your orders. The screen display is quite clear, although the occasional Communist unit gets lost in the mountains!, and sound effects abound, adding to the game's atmosphere.

**CONFLICT IN VIETNAM**
**Microprose**
**Cassette £11.95**
**Disk £14.95**
**Disk version reviewed**

***PAGE 6 have a limited number of the cassette version of this game at the special offer price of £4.95 (plus usual postage shown on our order forms). Use our order form in this issue or telephone for credit card purchases.***

## THE BATTLES

***Prelude* - DIEN BIEN PHU (1954):** The final battle of French Colonial rule. The Communists have the French sealed inside 8 forts (each named after their commanders girlfriends!) in the valley. The French lost although they inflicted heavy casualties on their enemy. The game gives you the chance to reverse America's decision NOT to intervene and see what US air power could have done. A very good introductory battle and my first and only victory!

***Into the valley* - IA DRANG (1965):** The First US Air Cavalry Division sweeps into Ia Drang valley, smashing Communist forces and changing the balance of war. A slow starter - smash as many Communist units as possible and get your men West FAST!

***The Tide Turns* - KHE SANH (1968):** North Vietnamese forces encircle US Marines at Khe Sanh base starting a siege lasting 78 days. The battle that shook America and not for those with a weak heart!

***Empty Fishhook* - CAMBODIA (1970):** US and South Vietnamese (ARVN) forces invade the Fishhook region of Cambodia searching for the North Vietnamese Headquarters for South Vietnam (COSVN). Very good stuff!

***First Cracks* - QUANG TRI (1972):** With US forces pulling out, the North Vietnamese launch a blitzkrieg offensive against the South. The invasion was repulsed but the South's fate is sealed. Huge game area and you have to rely heavily on ARVN forces.

All in all Conflict in Vietnam is a game for both experienced and beginner players alike. Its simple controls make it ideal for those with limited wargame experience and as always Microprose have excelled themselves with the manual. I feel the game has sufficient depth for the more seasoned player. Don't forget to use the 'cheat' option to change sides if things get too bad!

# contact ... contact ... contact ... contact

## FOR SALE

**THE WHOLE KIT:** 65XE, 1020 printer/plotter, XF551 disk drive, XC12 data recorder, joystick, magazines and over £300 worth of software. Valued at £625, sell for £380 o.n.o. Phone Steve after 6pm on (0423) 869127. Buyer must collect or pay postage.

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**XL SYSTEM:** 800XL with cassette recorder, over £200 worth of original software, joysticks, all leads and manuals. Excellent condition, £95. Also Assembler cartridge, £5; 3 Compute! books Atari Collections £5 each; Rev C Basic cart. (no lock up), £4; excellent Atari Adventure Programs book, £4. Phone Dave on 031 337 1641

**COMPLETE PACKAGE:** 800XL with Rev. C Basic, 1010 recorder, 1050 disk drive, 1029 printer, business software inc. Mini Office II, Home Filing Manager, AtariWriter plus games on tape, disk and Rom, 2 joysticks, original packaging. £190 plus postage. Tel. 0705 597117

**XL SYSTEM:** 800XL, 1050 disk drive, 1010 data recorder, all in good condition. Over 500 games/utilities on disk, cassette and cartridge. Magazines Atari User 1985 - 1987, New Atari User 45 - 52, 3 ANTICS and 2 books. All manuals and leads and a joystick. Will split. Complete system is £200. Phone Melanie on (081) 851 6642

**PRINTER:** 1027 printer in working order, £25. Also nearly new boxed disks, Ingrid's Back and Lancelot, £4 each plus Donkey Kong, Pacman, Archon and Basketball, £3 each. Buyer collects. Phone Mrs Alexander 0702 342268

**800 COMPUTER:** Atari 800 in excellent condition but now surplus to requirements. Also a few games etc. £30 o.n.o. Phone John evenings/weekends on (0246) 238187 (Derbyshire)

**800 SYSTEM:** 800 with 48k, 810 disk drive with Archiver, 850 interface, 130XE and XC12 recorder, joysticks, all manuals, books and 100 disks. All sensible offers considered. Phone Keith on (Milton Keynes) 0908 664238

**XL SYSTEM:** 800XL, 1050 disk drive, printer interface, 100 capacity disk box, 2 joysticks, £300 worth of software, magazines and books. Lot worth new £600, sell for £160. Tel. 061 432 8881

**XE SYSTEM:** 65XE, 1050 disk drive with US Doubler, XC12 data recorder, 1027 printer, all leads, PSU's, dust covers, joystick, over 450 games on disk, a few on cassette, a selection of PD disks, TV/monitor stand with integral drive holder plus a selection of NAU mags. £230 o.n.o. the lot. Phone Leicester (0533) 787511 ask for Pete. Buyer must collect, it's hard to carry all that on a motorbike!

**XL SYSTEM:** 800XL, 1050 disk drive, 1027 printer, 2 joysticks with leads and manuals plus software Mini Office II, Visicalc, Bookkeeper with Atari CX85 in original boxes. All for £225 o.n.o. Tel. Chopra (London) 081 574 8451 (evenings)

**HARDWARE:** CX77 Touch Tablet with AtariArtist rom, box and instructions plus Atari Trak-ball. Prices negotiable - anything considered. Write to Paul, 17 Spring Road, Clifton, Shefford, Beds. SG17 5RE

**XL SYSTEM:** 800XL, 1050 disk drive, games and utilities all in good condition. £130 o.n.o. Will split, disk drive £80. Phone Hinckley (0455) 230696

**XL SYSTEM:** 800XL, 1050 disk drive, 1020 colour printer, joystick, as new condition complete with all boxes and manuals, disk drive and printer make this a programming system for the programming enthusiast, £175. Phone 0684 594665

**ROMS:** O.C.S. ROMs and manuals, £15 each. Selection of books, all in good condition (Compute's 1 & 2, Machine Language for Beginners etc.), various prices. Ring (0827) 283103 ask for Keith

**JOYSTICK:** Powerplay multicoloured Cruiser joystick, automatic centring, 8-way directional control, unique 3-way power control (Sensitive, Normal, Firm). £8.00. Write to Tsoek Yin Cheung, 16 High Street, Grimethorpe, Barnsley, S. Yorkshire S72 7LS

**XE SYSTEM:** 130XE, 1050 disk drive, XC12, £130 o.n.o. Tel. Halifax 350642

**XL/XE SYSTEMS:** 800XL, 1010 tape recorder, £140 worth of software. bargain at £75. 130XE, disk drive, £200 worth of software. Bargain £110. Phone Exeter (0392) 213752

**XE SYSTEM:** XE console, keyboard, joystick, lightgun, power pack, TV lead and 4 cartridges PLUS 65XE computer, power pack, TV lead, program recorder and tapes. All for £80 o.n.o. Morrison, 458a, Strathmarine Road, Dundee, DD3 9BU. Phone 0382 825163

**UNUSUAL BOOK:** Pilgrim in the Microworld by D. Sudhow subtitled 'Eye, Mind and the Essence of Video Skill'. Written by a sociology professor who became fascinated by 'Breakout' on the Atari VCS. As new, £5 inc. post. Tel. (039 85) 438 or write A. Jones, 2 Townmead, Oakford, Nr. Tiverton, Devon EX16 9EW

**STE SYSTEM:** 520STE with upgrade to 1 meg, Megafile 60(meg) hard disk, SM1254 Hi-Res monitor, ATONCE 80286 IBM Emulator card and software. All v.g.c. Will split. £750 o.n.o. for whole system. Write to me at Chris Ford, Musicom House, Lower Gunstone, Bideford, Devon, EX39 2DE or phone (0237) 477748

**XL SYSTEM:** 800XL and 1010 data recorder, £80; Transdisk IV complete with instructions, £11. Tel. 0532 621886

**XE GAMES SYSTEM:** 65XE computer video games system, new in box, lightgun, built in game plus two cartridges and lightgun. Bargain. £50. Jean Circuit, 12 Belgravia, Long Marton Road, Appleby-in-Westmorland, Cumbria CA16 6XZ. Phone 07683 51861

**XE SYSTEM:** 65XE with XC12 tape recorder, joystick and £50 worth of games. Only £50. Tel. 0666 503712

**XE SYSTEM:** 130XE with XC12 data recorder, leads and manuals in original box inc. 80+ tapes, £50. 800XL on it own, £20. 1027 printer with leads and manual in original box, £25. 8 assorted cartridges, £25. Contact P. Lister on 0535 600266 after 6pm

**MAGAZINES:** Monitor Issues 1 to 21, Atari User Vol.1 - 4 to 12, Vol. 2 - 1 to 4 and 6 to 12, Vol. 3 - 1 to 12, Vol. 4 - 1 to 7, PAGE 6 Issues 17 to 50 complete. Offers to P. Lister on 0535 600266 after 6pm

**XE SYSTEM:** 130XE, manual, TV switch box and video cable, power supply, Touch Tablet with AtariArtist software, 1050 disk drive plus over 1 dozen pre-recorded disks, all boxed. bargain at only £100. Tel. 0200 27194

**XL SYSTEM:** 800XL with 1050 disk drive, all leads, power supplies and manuals with Centronics interface and Cheeta Mach I joystick, all in original boxes. Software includes Mini Office II, Microsoft basic II and Visicalc. Also Atari Basic book and a number of Atari User, PAGE 6 and New Atari User magazines. £100 the lot or will split. Buyer collects or pays carriage. Telephone Syd on 0934 834891

**XL SYSTEM:** 800XL with XC11 data recorder, little used, as new, still boxed. Also loads of top class software, all for only £120 o.n.o. Owner upgraded. Write to me please: Richard Harpur, 4 Castleredmond Estate, Midleton, Co. Cork, Ireland or FAX 010 353 21 631965

**HARDWARE:** 130XE, £40; 1050 disk drive, £70; 1029 printer, £80 or £150 if sold complete. All in good working order. Tel. 081 669 5840 evenings

**XE SYSTEM:** 65XE with XC12, loads of games, under a year old, excellent condition, £70 o.n.o.. Phone 0926 493235 ask for Manjit, after 4pm. Buyer collects.

**XE SYSTEM:** 130XE, 1050 disk drive, 1027 printer and some software. No splits. Best offer, purchaser pays postage or collects if not local. Phone 051 606 9986

**PRINTER:** 1027 printer for sale, needs slight attention, still boxed, £30 o.n.o. Tel. Phill 021 441 3064

## WANTED

**XL SYSTEM:** Required - Atari 800XL computer and 1050 disk drive original manuals. Contact (0530) 414920

**DISK DRIVE:** Wanted urgently, 1050 disk drive preferably with I.S. Plate or Archiver or similar. Will pay postage or collect. Cash waiting. Ask for Martin on 0707 373433

**DISK DRIVE:** 1050 disk drive wanted, will pay up to £50 for a good condition one with all cables. If any games between 10 - 20 will pay £60. Phone Morad on RAMSGATE 576321

**PRINTER:** 1029 printer, must be in good condition. Willing to pay around £60 as well as reasonable P&P cost. Phone 0203 302464 after 6.30pm

**DISK DRIVE:** 1050 disk drive wanted. Tel. Llanelli (0554) 777099 or write to D. Herbert, 70 Brynawelon, Bryn, Llanelli, Dyfed SA14 8RA

**M.U.L.E.:** Can anybody please help me obtain a copy of this either on disk or tape. Contact Stephen on 061 494 0835 after 7pm

**DISK DRIVE:** 1050 disk drive wanted with all leads etc. Please phone 0502 565348 or write Bill Pincott, 13 Mylodon Road, Lowestoft, Suffolk NR32 4BJ

**PRINTER:** Please can anyone sell me a printer for my 800XL. Must be in good working order. Badly needed, reasonable price please as I am disabled. Also games on disk please. Jean Circuit, 12, Belgravia, Long Marton Road, Appleby-in-Westmorland, Cumbria CA16 6XZ or phone 07683 51861

**DISK DRIVE:** Wanted in full working order inc. leads. Cash waiting. Also a reasonably priced printer. Terry Jenkins, 32 Ballam Avenue, Scawthorpe, Doncaster,DN5 9DX. Phone 0302 780839

**LISTINGS:** Copies of listings that can be found in Dr. C. Wacko's Miracle Guide to Designing and Programming Your Own Atari Computer Arcade Games (only the English version). Write to A. Bontsema, Wibenaheerd 366, 9736 ND, Groningen, Holland. (Penpals welcome too, cassette)

**MAPPING:** Mapping The Atari, must be in fairly good condition. Will pay good price. Write to Paul Hampshire, 12 Treelands Walk, Ordsall Park, Salford 5, Manchester M5 3FX or phone 8722814 (after 6pm only please!)

**SOFTWARE:** Solo Flight or Silent Service wanted, good price paid. Please write to Liam Dillon, 6 Ceanncora Lawn, Boreenmanna Road, Cork, Ireland. Phone (021) 363067

**DISK DRIVE:** 1050 disk drive with cables, manuals etc. Will exchange for 65XE computer with cables. Anyone interested write to Emiel Mennings, Tinneveldstraat 1, 6942 HH Didam, Netherlands

**MEMORY UPGRADE:** Plug in 32k memory module for 400. Will be interested in 48k also. Help with installation. Write to David Paul, 16 South Street, Brighton, BN1 1AP

**OLIVETTI:** Owners manual for an Olivetti JP.101 or a printer driver that I can add to my Print Shop program. Ring (0827) 283103, ask for Keith.

**AMATEUR RADIO:** Radio programs for 800XL - RTTY, Morse, AMTOR, SSTV, FAX etc. Tel. 0554 777099 or write to Derrick and Sharon, 70 Brynawelon, Bryn, Llanelli, Dyfed, SA14 8RA

**ADVENTURES:** I have started to collect them. I will pay reasonable prices. Any hint sheets as well. Last but not least, any 800XL penpals from 14 - 16 (American preferably). Write to Clare, 22 Birch Tree Drive, Emsworth, Hants PO10 7RT

**KICK OFF:** Does anybody have a copy of Kick Off preferably on disk? Write to C. Vernon, 25 Briarbank Terrace, Edinburgh, EH11 1SU or phone (031) 337 7634

MORE ☞

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# contact extra... contact extra ...

## WANTED

**2600 GAMES:** Wanted Atari 2600 games in good working order by 6 year old enthusiast. Tel. 0647 24065 (Devon)

**DISILLUSIONED:** Disillusioned with your STFM 1 Meg setup? Do you regret disposing of your trusty 8-bit system now? All is not lost as I will swap my 800XL, 1050 disk drive with US Doubler chips and a data recorder. Plenty of commercial and PD software on disk and cassette, magazines and reference books etc. Will deliver within reason. Do drop a line to Charles Smith, 93 Preachers Lane, ST. Ebbes, Oxford OX1 1RT

**DISK DRIVE:** Cheap 1050 required, must be in good condition with power pack and leads. I would also consider a 810 drive, modified or unmodified. Offers up to £40 without DOS 2.5, £45 with DOS 2.5 and manual. Write to Matthew Pemberton, Flat 1, 20 Lickless Gardens, Horsforth, Leeds LS18 5QU or leave a message on (0532) 581863

**PAGE 6:** PAGE 6 magazines 1 to 20 and 22 to 30 and 32 to 36. I will pay for postage, offers only. Ring Anthony on (061) 248 7893 after 6pm

**LEADERBOARD:** Has anybody got a copy of Leaderboard golf or/and Mastergolf on tape? I have searched for these for 2 years. Good price paid or swap other games. I would be forever grateful. M. Farner, 31 Marlowe Drive, Whitecross, Hereford HR4 0JL

**SOFTWARE:** NATO Commander on cassette and FS2 on Rom both for XL. Must have manuals. P&P paid. C. O'Dell, 10 Cornaig Road, Pollock, Glasgow G53 5AW

**MANUALS:** Manuals for 800XL, 1050 disk drive, DOS 2.5/3.0. Will pay postage. Also wanted Mapping The Atari (Revised edition). Pay cash or swap for Spectrum games. Also any 8-bit contacts. Tel. 0721 20863

**PRINTER:** 1029 printer required in good working order. Ring Neil in the evening on 0304 372969

**TURBO BASIC:** Wanted on cassette. Will pay for tape and postage. Ring Anthony on (061) 248 7893 after 6pm

## PENPALS/HELP

**WANTED!!:** Someone to print newsletters for user group. Any helpers? Come on, keep the 8-bit alive. Phone Robert on 0639 639040

**PENPALS:** I would like to hear from any 65XE owners willing to swap games and tips. I have 25 games and my favourite is Mad Jax. Please contact Anthony Graham, 179A Wimbledon Park Road, Southfields, London SW18 5RH

**N.O.S.A.U.G.:** North of Scotland Atari user Group. This new Atari 8-bit users group invites anyone from the North of Scotland to join and see just how strong the Atari XL/XE still is. Regular meetings in Aberdeen, newsletters, trips to shows etc. Interested? Call Stuart on (0358) 42744 for details. Long live the Atari 8-bit!

**IRISH PENPAL:** Hi!. I have an 800XL and XC12 data cassette and piles of games. Anyone interested in swapping games and tips, please write to me. I would love to hear from you. Write to Kieran Fanning, Scurlogue, Grange-Con, Co. Wicklow, Republic of Ireland

**CONTACT:** I would like to hear from any 8-bit (disk users mainly) users out there on this small planet! To swap hints, tips, games etc. (overseas please write!). Also is there a 'Yogi' out there? Write or phone Paul, 12 Treelands Walk, Ordsall Park, Salford 5, Manchester M5 3FX or phone 061 872 2814 after 6pm only please.

**PENPALS:** 34 year old 8-bit user seeks contact with other Atari enthusiasts anywhere. Help with programming given willingly and also gratefully received! All letters answered. Please write to Ann O'Driscoll, 9 Maywood Drive, Raheny, Dublin 5, Ireland

**PENPALS:** Contact with 8-bitters. I have 800XL, 1050 disk drive with Doubler and 1010. All letters answered. Also desperately wanted - programs similar to Super Chopper. Write to John Liever, 185 Rosehill Court, Salford, M6 5JW

**PENPALS:** I just bought a 1050 and want to discover its capabilities so I'm looking for any boy/girl that wants to write to me and switch games ex. adventures, scrollers etc. Cassettes welcome too! Arnold Bontsema, Wibenaheerd 366, 9736 ND Groningen, Holland

**DIZZY:** I am looking for one of the Dizzy games by Codemasters (preferably Fantasy World Dizzy). I have asked the makers but they don't sell it any more. Martin Burt, 16 Claudius Close, castle Park, Doncaster, Dorset, DT1 2RN. Tel. (0305) 267218

**PENPAL:** Someone to swap games (disk) also wanted Alternate Reality (both) and any war-game. Will pay or exchange with other games (got over 150). write to Elco Luyendujk, Kanaalweg 14, 2678 LX De Lier, Holland

**HELP:** To any XE owner out there who can program machine code and is willing to teach a beginner who has only owned a 130XE for 6 months. Please contact Derek Wilson, 33 Banbury Road, North Kenton, Newcastle-Upon-Tyne, NE3 3SP

**CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit any notice received at his discresion.**

**Send your CONTACT notice to CONTACT, PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Please write your notice on a separate sheet of paper, not as part of a letter.**

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# STRINGING AL

***Ann O'Driscoll shows you how to get along with strings and proves they're not difficult to understand - when you know how!***

A string is a collection of keyboard characters - letters, numbers, punctuation marks, etc. - enclosed by quotation marks. The computer can measure the length of a string or work out the value of any numbers in it. It can also join two or more strings together end-to-end or split one up and look at its particular elements. In fact, strings can be used in a number of ways and in all sorts of programs once you get the hang of a few basic concepts. The aim of this article is to help you along the way. A few simple program listings are included to illustrate the points as they are introduced.

## SETTING UP A STRING AND PUTTING INFORMATION INTO IT

The **DIM** statement is used to set up space in the computer's memory for a string variable. This takes the form DIM A$(n) where A$ is the name of the string and n is the number of characters in it. The name you give the string must end with a dollar sign. This lets the computer know that it's dealing with a string variable and not a numeric variable.

We can put information into the string in a number of ways:- by using **INPUT**, by **READ**ing DATA into it or just by saying A$="something". We can also specify where the information is to go in the string. For instance, A$(1,5)="ATARI" says the first 5 spaces in our string are to be filled with the letters ATARI, while A$(10)="computers" tells the computer to put this word in the string, starting at the 10th space. If there was something there already it would get overwritten. Also, it doesn't matter that we didn't start with 6, which was the next free space, however if our DIMensioned length was less than 10 we would get an error message here.

## COMPARING STRINGS

The computer compares strings by looking at the **ASCII** codes of the characters in them. If we say A$<B$ it means the ASCII code in A$ comes before that of B$; B$>A$ means the opposite. The computer will only move on to compare the second elements (if any) in the strings if the first characters are the same. This can throw up some funny results: If we have A$="3" and B$="17" we get A$>B$ because only the 3 and the 1 are compared.

***Listing 1*** is a simple "telephone list" which illustrates how strings are compared: LINE 130 asks you to input a name which is then held in the string SEARCH$. The computer reads names and phone numbers in pairs from the DATA in LINE 190. Each name is compared with the one being searched for (LINE 140). If they match the associated phone number is put up on the screen (LINE 170) otherwise you are told that the name is not in the data (LINE 160).

If you want to adapt this listing by putting in 'real' names and phone numbers, you may need to change the counter for the loop in LINE 140. This is currently set at 3 because there are 3 pairs of names and numbers.

```
RU 100 REM  LISTING 1:SEARCH & COMPARE 
QS 102 REM
NL 110 DIM NAME$(10),PHONE$(15),SEARCH$(1
   0)
VO 120 GRAPHICS 0:POSITION 2,2:? "PHONE N
   UMBERS":POSITION 2,4:? "INPUT NAME TO
   SEARCH FOR"
XN 130 INPUT SEARCH$
LW 140 RESTORE 190:FOR N=1 TO 3:READ NAME
   $,PHONE$:IF NAME$=SEARCH$ THEN POP :GO
   TO 170
HZ 150 NEXT N
MD 160 POSITION 2,10:? SEARCH$;" isn't in
    the data list":END
XH 170 POSITION 2,10:? SEARCH$;"'s phone
   number is ";PHONE$:END
UI 190 DATA PAGE 6,0785-213920,JOHN,123-4
   56789,MARY,999999
```

**Listing 1**

```
TD 200 REM  LISTING 2: ANAGRAMS 
MC 210 DIM WORD$(15),A$(15),B$(15)
KR 215 GRAPHICS 0:POSITION 5,5:? "ANAGRAM
   S":POSITION 5,10:? "INPUT WORD TO BE S
   CRAMBLED:":POSITION 5,12
XA 220 INPUT WORD$
PK 230 FOR N=LEN(WORD$) TO 1 STEP -1
AI 240 A=INT(RND(0)*N)+1
NJ 250 A$(LEN(A$)+1)=WORD$(A,A)
YN 260 IF A<>1 THEN B$=WORD$(1,A-1)
SF 265 IF A=1 AND A<>LEN(WORD$) THEN B$=W
   ORD$(A+1):GOTO 280
UG 270 IF A=LEN(WORD$) THEN 280
XD 275 B$(LEN(B$)+1)=WORD$(A+1)
GE 280 WORD$=B$:NEXT N
DT 290 POSITION 5,18:? "THE SCRAMBLED VER
   SION IS":POSITION 5,20:? A$:END
```

**Listing 2**

# ALONG

a string called WORD$. The program picks letters randomly from WORD$ (LINES 230-240) and puts them one by one into the string A$ which gradually builds up into the anagram (LINE 250). Another string, B$ is made from the remaining letters in WORD$ i.e. the letters before the one that was just picked (LINE 260) plus the letters after the one that was just picked (LINE 275). LINES 265 and 270 cover the cases where the first or last letters in WORD$ are picked, as there's nothing before or after the random letter to be added on in these situations. WORD$ is then set equal to B$ and the process continues until all the letters have been taken out. As WORD$ loses a character on each round of the loop, the upper limit for the random number is reduced by 1 at each cycle (LINES 230-240).

This listing could form the basis for a word game. For instance, you could hold a few words in a DATA statement, get the computer to READ each one, go through the scrambling routine shown here, print the anagram on the screen and then ask someone to guess the original word.

***Listing 3*** is a small illustration of how strings could be used in a text editor type program, just by using the concepts introduced so far. The idea is we have a sentence stored in "T$" and we want to replace a word or letter which we input in "O$" with another word/letter which we input in "N$". Line 340 counts up from 1 to the last place in T$ where the word to be replaced can begin (this depends on the length of O$) and searches each area of text to see if O$ is there (LINE 350). The swapping is done in LINES 360-365 using a temporary string called S$; this is needed in case the new and old words are not the same length. LINE 360 slots the new word into S$ beginning where the old word started; LINE 365 adds the remaining original text (from the end of the old word onwards) on to this. The IF statement in LINE 360 ensures that words replaced at the end of the text will not be added back on. A practical example of where this type of routine could be used would be to replace a wrong spelling in a block of text.

## MEASURING STRINGS AND JOINING THEM TOGETHER

The function **LEN** is used to find the length of a string. PRINT LEN(A$) will always give us the current or actual string length rather than the DIMensioned length. LEN is also used to add strings. If we have 2 strings, A$ and B$, we join them together by saying A$(LEN(A$)+1)=B$ which tells the computer to start B$ at the next free place (existing length plus 1) in A$. You can also put the joined up version in another string, if you want to keep the original strings intact - this is done in Listing 3. In either case, the strings are simply glued together but the contents are not changed. For instance, if A$="1" and B$="2" the result of adding B$ to A$ will be 12, not 3.

***Listing 2*** makes use of LEN and string joining to build an anagram from a word which is input in LINE 220 and stored in

**continued** 

```
RF 300 REM  LISTING 3: WORD REPLACEMENT
QU 302 REM
NB 310 DIM T$(60),O$(10),N$(10),S$(60)
VF 315 T$="THE TEXT IS: THE CAT SAT ON TH
   E MAT"
PY 320 GRAPHICS 0:POSITION 2,2:? "WORD SW
   OPS":POSITION 2,6:? T$
SG 322 POSITION 2,10:? "INPUT OLD WORD: "
   ;:INPUT O$:IF O$="" THEN 322
IB 324 POSITION 2,12:? "INPUT NEW WORD: "
   ;:INPUT N$:IF N$="" THEN 324
QU 326 S$=T$:C=0
VS 330 POSITION 2,14:? "Press a key to re
   place ";O$;" with ";N$
JC 335 IF PEEK(764)=255 THEN 335
RA 340 C=C+1:IF C>LEN(T$)-LEN(O$)+1 THEN
   390
CV 350 IF T$(C,C+LEN(O$)-1)<>O$ THEN 340
CZ 360 S$(C)=N$:IF LEN(T$)<C+LEN(O$) THEN
    370
CJ 365 S$(LEN(S$)+1)=T$(C+LEN(O$))
RO 370 T$=S$
OK 380 GOTO 340
OB 390 POSITION 2,20:? T$:POKE 764,255:EN
   D
```
*Listing 3*

```
IR 400 REM  LISTING 4: DATE CHECK
QV 402 REM
UM 410 DIM D$(6)
PV 420 GRAPHICS 0:POSITION 2,2:? "DATE CH
   ECK":? :? "INPUT DATE IN FORMAT DDMMYY
   ":POSITION 2,6
AX 430 INPUT D$
OU 440 IF LEN(D$)<>6 THEN 490
AN 450 FOR N=1 TO LEN(D$):IF ASC(D$(N))<4
   8 OR ASC(D$(N))>57 THEN POP :GOTO 490
IE 460 NEXT N
HP 470 IF VAL(D$(1,2))=0 OR VAL(D$(1,2))>
   31 THEN 490
UJ 472 IF VAL(D$(1,2))>29 AND VAL(D$(3,4)
   )=2 THEN 490
KI 474 IF VAL(D$(1,2))=31 AND (VAL(D$(3,4
   ))=4 OR VAL(D$(3,4))=6 OR VAL(D$(3,4))
   =9 OR VAL(D$(3,4))=11) THEN 490
ON 476 IF VAL(D$(3,4))=0 OR VAL(D$(3,4))>
   12 THEN 490
SB 478 IF VAL(D$(1,2))=29 AND VAL(D$(3,4)
   )=2 AND (VAL(D$(5,6))/4)<>INT(VAL(D$(5
   ,6))/4) THEN 490
RG 480 ? :? :? "OK - you can continue..."
   :END
LG 490 ? :? "Not accepted! try again":GOT
   O 430
```
*Listing 4*

## EXAMINING STRINGS - USING ASC, VAL AND CHR$

We use the function **VAL** to get the value of numbers in a string. On its own, VAL will look at the leading digits only. For example, if you have a string D$="3 March 1991", then PRINT VAL(D$) will return the number 3. We can also direct it to pick out a number or sequence of numbers within the string; for instance, PRINT VAL(D$(9,12)) will return the value 1991.

It is a good idea to check that your string contains numbers before using VAL, because you get an error message if the first character is not a number. The function **ASC** is useful here: This gives us the ASCII code of a character in the string so we can check if the code corresponds to a number (i.e. within the 48 - 57 range).

***Listing 4*** shows how LEN, VAL and ASC are used to check that a date is input in a particular format: LINE 440 checks that it's the right length (6 characters), LINES 450-460 make sure that all the characters are numbers and LINES 470-478 check the various day/month combinations:- For example, LINE 78 will not accept 29 February (D$(1,2)=29 and D$(3,4)=2) unless its a leap year (no remainder when you divide D$(5,6) by 4). If D$ is not acceptable the program is directed to LINE 490, where you are asked to try again.

The **CHR$** function is the reverse of ASC and gives us the string character for an ASCII code. For example, the ASCII code for the letter A is 65; if we say PRINT CHR$(65) we get "A" as the result.

ASC and CHR$ are often used to disguise the characters in a string - you might do this to make DATA in a quiz or adventure game hard to read. A simple way would be to add a fixed number to the ASCII of each character [so that A becomes D, B becomes E, etc.]

***Listing 5*** uses ASC and CHR$ to make a code program: A codeword is held in CO$ (LINE 515). You are asked to input a message (LINE 516) which is held in M$. The ASC of the first letter of the code is added to the ASC of the first letter of the message; this is kept within the range of the alphabet [by subtracting 26 if the ASCII code is above 90, the value for Z (LINE 540)] and turned back into a letter using CHR$. The result is stored in the string ST$. The process is repeated until all the letters in the message are gone through; the program goes back to the start of the codeword each time the code letters are used up (LINE 520). Only capital letters are coded; everything else - numbers, symbols, spaces, are left alone. (LINE 530)

The second half of the listing does the decoding: This is just the reverse process to the above, with the decoded string stored in DE$. A routine could be put in here (after LINE 555) which would only decode once the correct codeword was entered.

```
UV 500 REM  LISTING 5:CODES - ASC/CHR$
QW 502 REM
LX 510 DIM CO$(10),M$(50),ST$(50),DE$(50)
MF 515 CO$="PAGE6":N=0:X=0
FK 516 GRAPHICS 0:POSITION 2,2:? "CODES":
   POSITION 2,4:? "INPUT MESSAGE TO BE CO
   DED:":POSITION 2,6:INPUT M$
HU 520 N=N+1:IF N>LEN(CO$) THEN N=1
JP 525 X=X+1:IF X>LEN(M$) THEN 555
DC 530 IF M$(X,X)<"A" OR M$(X,X)>"Z" THEN
    ST$(LEN(ST$)+1)=M$(X,X):GOTO 525
QT 535 S=ASC(M$(X))+ASC(CO$(N))
KE 540 IF S>90 THEN S=S-26:GOTO 540
DG 545 ST$(LEN(ST$)+1)=CHR$(S)
OE 550 GOTO 520
JI 555 POSITION 3,10:? ST$
CG 560 POKE 764,255:POSITION 2,14:? "Pres
   s any key to decode":N=0:X=0
OS 565 IF PEEK(764)=255 THEN 565
IE 570 N=N+1:IF N>LEN(CO$) THEN N=1
CJ 572 X=X+1:IF X>LEN(ST$) THEN 592
OK 575 IF ST$(X,X)<"A" OR ST$(X,X)>"Z" TH
   EN DE$(LEN(DE$)+1)=ST$(X,X):GOTO 572
QW 580 S=ASC(ST$(X))-ASC(CO$(N))
QP 582 IF S<65 THEN S=S+26:GOTO 582
HQ 585 DE$(LEN(DE$)+1)=CHR$(S)
RI 587 GOTO 570
BW 592 POSITION 3,18:? DE$:POKE 764,255:E
   ND
```

***Listing 5***

```
FD 600 REM  LISTING 6:STORE SUBSTRINGS
QX 602 REM
ER 610 DIM DAT$(10),PET1$(24),PET2$(14),P
   (2,1)
XJ 615 PET1$(1)=" ":PET1$(24)=" ":PET1$(2
   )=PET1$
RT 620 RESTORE 690:FOR N=1 TO 3:READ DAT$
   :PET1$(8*(N-1)+1)=DAT$:NEXT N
AE 630 RESTORE 690:FOR N=0 TO 2:READ DAT$
AQ 635 P(N,0)=LEN(PET2$)+1
PK 640 PET2$(LEN(PET2$)+1)=DAT$
ZI 645 P(N,1)=LEN(PET2$)
IE 650 NEXT N
ES 660 GRAPHICS 0:POSITION 2,2:? "PET1$:
    ";PET1$:?
XX 662 FOR N=1 TO 3:? "N=";N;"  PET1$(8*(
   ";N;"-1)+1,8*";N;") = ";PET1$(8*(N-1)+
   1,8*N):NEXT N
XE 670 POSITION 2,12:? "PET2$:  ";PET2$:?
VN 672 FOR N=0 TO 2:? "N=";N;"  PET2$(P("
   ;N;",0),P(";N;",1)) = ";PET2$(P(N,0),P
   (N,1)):NEXT N
ZA 690 DATA DOG,CAT,GOLDFISH
```

***Listing 6***

## IDENTIFYING DIFFERENT PARTS OF A STRING

When you use a big string to store separate items of information, you need to have a way of knowing where each element or substring is. The easiest way of doing this is to reserve a fixed amount of space for each component. Such a string is set up by DIM A$(number*length) where number=the number of separate entries and length = the fixed space being allocated to each one. Another method involves storing the substrings "nose to tail", and using a 2 dimensional numeric array to point to the start and end of each element. Listing 6 stores 3 names in a string called PET1$ using the fixed length method; the same information is stored end-to-end in PET2$. The 2 strings are printed on screen in LINES 660-672.

Taking PET1$ first, each of the 3 substrings has to get 8 spaces because this is the size of our largest element (LINE 610). LINE 615 blanks out all the spaces in the string and the DATA is put into the string in LINE 620. The nth element in a fixed length string will start at L*(n-1)+1 where L is the allocated length; in this case the substrings start at PET1$(1), PET1$(9) and PET1$(17).

PET2$ only has to be as long as the combined length of its substrings - 3+3+8 in this case. LINE 610 sets up a 2 dimensional numeric array, P, with 3 elements in one direction [0, 1 and 2] for the number of names and 2 elements in another direction [0 and 1] to hold 2 pieces of information about each name:- For the nth substring, P(n,0) will hold its the starting location and P(n,1) will hold its finishing point in the string. LINES 630-650 fill PET2$ and calculate the figures for the array at each step.

# A LITTLE TITLE DEMO

Here is another nice little intro screen that you might like to add to the beginning of your programs to brighten them up and start things off in style.

It's easy to use, just type in the program as it is listed and run it! If you wish to have a Binary Load version of this file then do the following:

1. Load and Run the program
2. Press RESET to get back to BASIC
3. Load DOS
4. Select K - Binary Save
5. Type in: SD.EXE,0600,0677,0600
6. The file will then be saved on the disk as SD.EXE and can now be run with the DOS option L.

You could probably change this into an AUTORUN.SYS file so that your favourite disks can boot up with a bit more panache!

```
WO 1 REM ******************************
PJ 2 REM *     QUICKIE TITLE DEMO     *
WU 3 REM *             BY             *
PQ 4 REM *         SUE DONYM          *
SR 5 REM * -------------------------- *
FA 6 REM * NEW ATARI USER - OCT 1991  *
WU 7 REM ******************************
NN 8 REM
BF 10 FOR I=1536 TO 1655:READ A:POKE I,A:
   NEXT I:X=USR(1536)
AE 20 DATA 169,0,32,63,6,169,255,133,20,1
   73,11,212,10,101,19,101,19,48,5,32,42,
   6,169,0,141,10,212,141,26,208,165
UL 30 DATA 20,208,5,133,77,76,0,6,76,9,6,
   173,13,6,201,101,240,9,169,101,141,13,
   6,141,15,6,96,169,229,76,51,6,141
PF 40 DATA 197,2,169,78,141,48,2,169,6,14
   1,49,2,96,112,112,112,112,112,112,112,
   112,71,103,6,112,112,112,112,112
QX 50 DATA 112,112,112,112,71,103,6,65,78
   ,6,0,0,0,110,101,119,0,97,116,97,114,1
   05,0,117,115,101,114
```

**by Sue Donym**

## ADAPTING THE LISTINGS

A few suggestions have already been given of how some of the listings shown here could be developed. The last program, Listing 7, which shows how you can use the command GET to input things without them showing up on the screen, might be useful here. A password is held in the string PASS$ (LINE 710). Each letter you input is added to the string TRY$ (LINE 740); the two strings are compared when you hit RETURN (KEY=155) or when TRY$ is full (LINE 780). If you are wrong TRY$ is emptied (TRY$="" in LINE 785) and you get a second chance.

I hope that this article has guided you along the way to creating your own programs using strings and has shed light on some areas that you may not have understood. So, give it try. Maybe you could incorporate the try again and secret input routines in an anagram or code program using the listings here as a starting point?

```
XN 700 REM  LISTING 7:SECRET INPUT 
QY 702 REM
LL 710 DIM PASS$(10),TRY$(10):PASS$="STRI
   NGS"
PM 715 CLOSE #1:OPEN #1,4,0,"K:":COUNT=0
JW 720 GRAPHICS 0:POSITION 2,2:? "PASSWOR
   DS":? :? "Input the password and press
    RETURN:":?
NV 725 COUNT=COUNT+1
HE 730 GET #1,KEY:IF KEY=155 OR LEN(TRY$)
   =10 THEN 780
PM 740 TRY$(LEN(TRY$)+1)=CHR$(KEY)
PL 750 GOTO 730
JX 780 IF TRY$=PASS$ THEN ? "OK! you can
   run the program ..":END
YG 785 IF COUNT<2 THEN ? "Wrong - try aga
   in":TRY$="":GOTO 725
XD 790 ? "Access denied!":END
```

Listing 7

# Tutorial Time

**continued**

other, but it will not run as a continuous loop because there is no way to get back to the beginning of the tape automatically - you have to select rewind manually and then run again.

## DATA COMPRESSION

Of course one way of improving the speed of data load and save is to reduce the amount of data that has to be transferred. This could be done using a data compression subroutine. I have not yet explored the mysteries of data compression algorithms though I have used them on a PC. I guess that the problem is that the data compression process must be very fast or it will use up just as much time as slow data transfer, and that probably means that it will have to be written in machine code. I must look into it - can any of you give me some advice on this subject?

1

*I will finish off with my regular offer of assistance on Basic programming matters; please send a stamp for a reply, and be patient - I cannot always reply quickly. In fact it sometimes takes several weeks depending on the backlog and the time I can spare. If you want to send a disk I will send it back with a copy of the slideshow program and a set of example graphics (sorry no tapes for this as it would take too long to copy a series of graphics onto tape). My address is:*

**Ian Finlayson,60 Roundstone Crescent, East Preston, West Sussex, BN16 1DQ**

# BULK DISK FORMATTER

by Paul Hollins

Bulk Disk Formatter was created so that you can format as many, or as few, disks as you require quickly and easily. Usually you have to use DOS to format your disks, which can take forever with its multiple questions. With BDF all you have to do is answer one simple set of prompts at the very start of the program and then just follow the on-screen instructions.

## PUTTING IT TO USE

Type in BDF using TYPO 3, and then save a copy to an already formatted DOS disk, I recommend using DOS 2.5, and write-protect it. This is now your Master Copy and you should keep it in a safe place.

The program itself is self explanatory and with its on-screen prompts you should have no problems getting to grips with it. However you may like to know it supports drives 1 through 4, just like DOS 2.5 and will format automatically in Enhanced Density on a 1050 drive and Single Density on an 810. I must point out that BDF will not write DOS.SYS or DUP.SYS files to the disk after formatting it, you will still have to use DOS option H to do this!

## SAVING A LOT OF TIME

The reason I wrote BDF is because DOS always used to take me so long when formatting disks. I usually buy disks in quantity and therefore to cut the time needed to format them all, I need something that is fast and efficient, and up to now BDF has been just fine.

As the program stands it does have room for improvement. I have left it like this deliberately so that you can modify the program to suit your own requirements, however you may have to renumber the program. Incidentally this program is Turbo Basic compatible, although you will not notice an increase in its speed.

## IMPROVEMENTS

Here are a couple ideas for improving the main program.

Write a routine to let you toggle between single and enhanced density, or even upgrade the program so that it recognises double density.

Make BDF write DOS.SYS and maybe even DUP.SYS to your disks after formatting them.

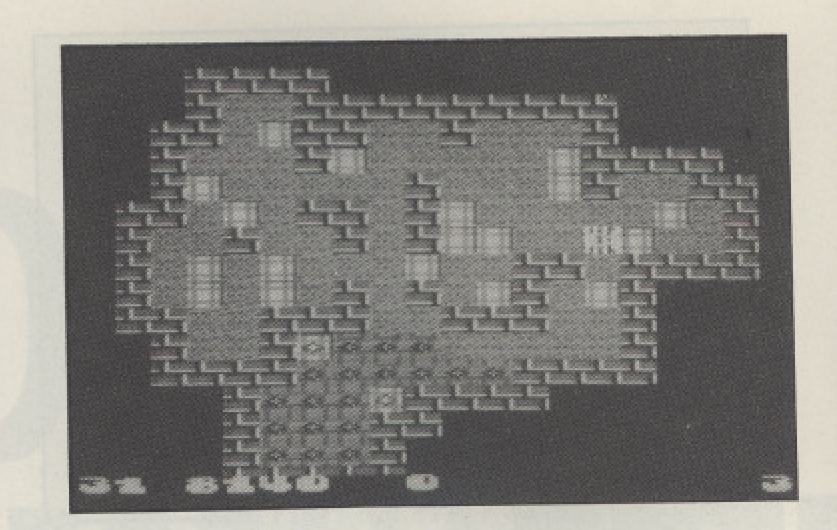
Both of the above are relatively simple, but I'm sure you can think of loads more to play around with. If you do make any improvements I would love to see them.

```
CS 1 REM ##############################
BF 2 REM #    BULK DISK FORMATTER     #
ZV 3 REM #            by              #
OO 4 REM #       Paul Hollins         #
SG 5 REM # -------------------------- #
FY 6 REM # NEW ATARI USER - OCT. 1991 #
CY 7 REM ##############################
NN 8 REM
DI 10 CLR :GRAPHICS 0
GW 20 POKE 82,2
XV 30 DIM DISK$(3)
XJ 40 DRIVES=1:GOSUB 1220
IW 50 ? :? :? :? "    WHICH DRIVE TO FORM
   AT >D1:"
MT 60 ? :? :? :? :? :? :? :? "┌──────────
   ──────────────────────────┐"
VV 70 ? "↑|  SELECT TO INCREASE DRIVE N
   UMBER |"
WW 80 ? "↑|  OPTION TO DECREASE DRIVE N
   UMBER |"
SX 90 ? "↑|      START FOR NEXT MENU
         |"
IM 100 ? "↑└─────────────────────────
   ───────┘"
YT 110 POSITION 30,9:? "1"
KG 120 CONSOL=PEEK(53279)
PP 130 FOR DELAY=1 TO 90:NEXT DELAY
WA 140 IF CONSOL=7 THEN 120
CN 150 IF CONSOL=6 THEN 380
UC 160 IF CONSOL=5 THEN 200
AZ 170 IF CONSOL=3 THEN 290
MS 180 GOTO 120
FY 190 REM ** INCREASE DRIVE No. **
FL 200 DRIVES=DRIVES+1
BK 210 SOUND 0,10,90,10:SOUND 1,10,90,10:
   FOR DELAY=1 TO 50:NEXT DELAY
DL 220 SOUND 0,0,0,0:SOUND 1,0,0,0
BQ 230 IF DRIVES=2 THEN POSITION 30,9:? "
   2":GOTO 120
DU 240 IF DRIVES=3 THEN POSITION 30,9:? "
   3":GOTO 120
FY 250 IF DRIVES=4 THEN POSITION 30,9:? "
   4":GOTO 120
LV 260 IF DRIVES>4 THEN DRIVES=1:GOTO 110
OF 270 END
DQ 280 REM ** DECREASE DRIVE No."
HN 290 DRIVES=DRIVES-1
GO 300 SOUND 0,13,90,10:SOUND 1,13,90,10:
   FOR DELAY=1 TO 50:NEXT DELAY
DK 310 SOUND 0,0,0,0:SOUND 1,0,0,0
```

```
IR 320 IF DRIVES<1 THEN DRIVES=4:POSITION
   30,9:? "4":GOTO 120
WU 330 IF DRIVES=1 THEN GOTO 110
BT 340 IF DRIVES=2 THEN POSITION 30,9:? "
   2":GOTO 120
DX 350 IF DRIVES=3 THEN POSITION 30,9:? "
   3":GOTO 120
GB 360 IF DRIVES=4 THEN POSITION 30,9:? "
   4":GOTO 120
ST 370 REM ** HOW MANY DISKS **
BY 380 GRAPHICS 0:GOSUB 1220
SU 390 IF DRIVES=1 THEN DISK$="D1:"
TW 400 IF DRIVES=2 THEN DISK$="D2:"
VR 410 IF DRIVES=3 THEN DISK$="D3:"
XM 420 IF DRIVES=4 THEN DISK$="D4:"
FQ 430 ? :? :? :? "  HOW MANY DISKS TO FO
   RMAT >0"
SD 440 ? :? :? :? :? :? :? :? "┌────────
   ──────────────────────────":? "|  PLEA
   SE TYPE THE NUMBER OF DISKS |"
PY 450 ? "|    TO FORMAT AND PRESS RETURN
   |":? "| OR PRESS ESC TO RETURN TO
   MENU    |"
OA 460 ? "└──────────────────────────────
   ───┘"
WY 470 POKE 764,255
JU 480 IF PEEK(764)=255 THEN 480
RP 490 IF PEEK(764)=28 THEN RUN
KA 500 IF PEEK(764)<>255 THEN 510:GOTO 48
   0
NV 510 POKE 752,0:POSITION 30,9:POKE 82,3
   0
PH 520 TRAP 590
NS 530 INPUT #16,FORMAT
IQ 540 POKE 82,2
YG 550 IF FORMAT=0 THEN RUN
PM 560 GOTO 640
OI 570 END
JG 580 REM ** INPUT ERROR TRAP **
JA 590 POKE 82,2
JJ 600 IF PEEK(195)=8 THEN LET FORMAT=0:R
   UN
KU 610 GOTO 1300
NZ 620 END
YY 630 REM ** START FORMAT PROCESS **
BT 640 GRAPHICS 0:GOSUB 1220
IT 650 POKE 82,2
GV 660 ? :? :? :? "┌──────────────────
   ─────────────────┐"
BM 670 ? "|DRIVE TO FORMAT IS          :
   |"
WZ 680 ? "|No. OF DISKS TO FORMAT IS :
   |"
CZ 690 POSITION 30,10:? DISK$
XG 700 POSITION 30,11:? FORMAT
NT 710 ? "└──────────────────────────────
   ───┘"
BQ 720 ? :? :? :? :? :? :? "┌──────────
   ─────────────────────────┐"
DE 730 ? "|        PRESS START TO PROCEED
   |"
GV 740 ? "|      OR ESC TO QUIT TO MAIN ME
   NU  |"
OB 750 ? "└──────────────────────────────
   ───┘"
WZ 760 POKE 764,255
JB 770 IF PEEK(53279)=6 THEN 810
RQ 780 IF PEEK(764)=28 THEN RUN
RL 790 GOTO 770
EG 800 REM ** START FORMAT ROUTINE **
CX 810 FOR ROUTINE=1 TO FORMAT:GRAPHICS 0
   :GOSUB 1220
GP 820 ? :? :? :? "┌──────────────────
   ─────────────────┐"
HL 830 ? "| FORMAT DRIVE :
   |"
KR 840 ? "| DISK No.       :
   |"
OC 850 ? "└──────────────────────────────
   ───┘"
UQ 860 ? :? :? :? :? :? "┌────────────
   ─────────────────────────┐"
RX 870 ? "|    PUT THE DISK TO FORMAT IN T
   HE  |"
```

```
WV 880 ? "|    APPROPRIATE DRIVE AND PRESS
   |"
BK 890 ? "|START TO FORMAT OR ESC TO CA
   NCEL|"
NT 900 ? "└──────────────────────────────
   ───┘"
GP 910 POSITION 19,10:? DISK$
TI 920 POSITION 19,11:? ROUTINE
WV 930 POKE 764,255
ZG 940 POKE 53279,7
RO 950 IF PEEK(53279)=6 THEN 980
RO 960 IF PEEK(764)=28 THEN RUN
RH 970 GOTO 950
TO 980 POSITION 9,13
JC 990 ? "CURRENTLY FORMATTING ";DISK$
DK 1000 POSITION 19,14:? "DISK No.";ROUTI
   NE
KS 1010 XIO 254,#1,0,0,DISK$
GQ 1020 SOUND 0,10,119,10:FOR DELAY=1 TO
   50:NEXT DELAY:SOUND 0,0,0,0:NEXT ROUTI
   NE
YH 1030 REM ** ALL FORMATTING DONE **
KA 1040 GRAPHICS 0:GOSUB 1220
NQ 1050 ? :? :? :? :? "          FORMATTING
   COMPLETE"
ZO 1060 SOUND 0,10,90,10:SOUND 1,10,90,10
   :FOR DELAY=1 TO 50:NEXT DELAY
UO 1070 SOUND 0,0,0,0:SOUND 1,0,0,0
FF 1080 SOUND 0,13,90,10:SOUND 1,13,90,10
   :FOR DELAY=1 TO 50:NEXT DELAY
UU 1090 SOUND 0,0,0,0:SOUND 1,0,0,0
XX 1100 ? :? :? :? :? :? :? "┌─────────
   ─────────────────────────┐"
CZ 1110 ? "|     PRESS START FOR MAIN ME
   NU  |"
TS 1120 ? "|     PRESS OPTION FOR DOS
   |"
IS 1130 ? "|     PRESS SELECT FOR BOOT
   |"
BN 1140 ? "└─────────────────────────────
   ───┘"
IV 1150 POKE 53279,7
UF 1160 IF PEEK(53279)=6 THEN RUN
BX 1170 IF PEEK(53279)=3 THEN DOS
UI 1180 IF PEEK(53279)=5 THEN X=USR(58487
   )
RD 1190 GOTO 1160
ER 1200 END
BF 1210 REM ** SET UP GR.0 SCREEN **
OH 1220 SETCOLOR 2,0,0:POKE 752,1
NH 1230 POSITION 0,0:? "═════════════════
   ═════════════════════"
JE 1240 POSITION 0,1:? "|        BULK DI
   SK FORMATTER        |"
LF 1250 POSITION 0,2:? "|        -------
   ------------        |"
DG 1260 POSITION 0,3:? "|       Written b
   y Paul Hollins      |"
TH 1270 POSITION 0,4:? "═════════════════
   ═════════════════════"
BB 1280 RETURN
GR 1290 REM ** ALL ERRORS CAUGHT! **
JU 1300 GRAPHICS 0:GOSUB 1220
DI 1310 ? :? :? :?
BS 1320 ? "┌─────────────────────────────
   ───┐"
GD 1330 ? "|ERROR:    HAS OCCURRED.
   |"
HS 1340 POSITION 9,11
XB 1350 ERR=PEEK(195)
ZX 1360 ? ERR
CA 1370 ? "└─────────────────────────────
   ───┘"
XZ 1380 ? :? :? " PLEASE REFER TO YOUR AT
   ARI HANDBOOK":? :? :? :?
CN 1390 ? "┌─────────────────────────────
   ───┐"
WB 1400 ? "|     PRESS START TO MAIN MEN
   U    |"
BK 1410 ? "└─────────────────────────────
   ───┘"
TZ 1420 IF PEEK(53279)=6 THEN RUN
QB 1430 GOTO 1420
```

# SOGON



I can hardly believe it - this month there seems to be nothing but good news for Atari users! Not only are we treated to a great new range of budget tapes from Zeppelin, the publishers of the Excel disk mag have a whole bundle of surprises for floppy drive owners too.

SOGON is one of a new series of imported 'Ke-Soft' games distributed by Excel. In case you're wondering if this means you'll need a language conversion dictionary to understand what's going on, I'm pleased to report that everything is written in English! Unfortunately the review copy of Sogon was supplied minus instructions, but presumably this will be sorted out with the 'official' release. The game kicks off on a promising note with an excellent foot-tapping jingle - it's a pity it doesn't last a bit longer! Pressing the Start button prompts the first screen to load and draw, rather slowly, from disk.

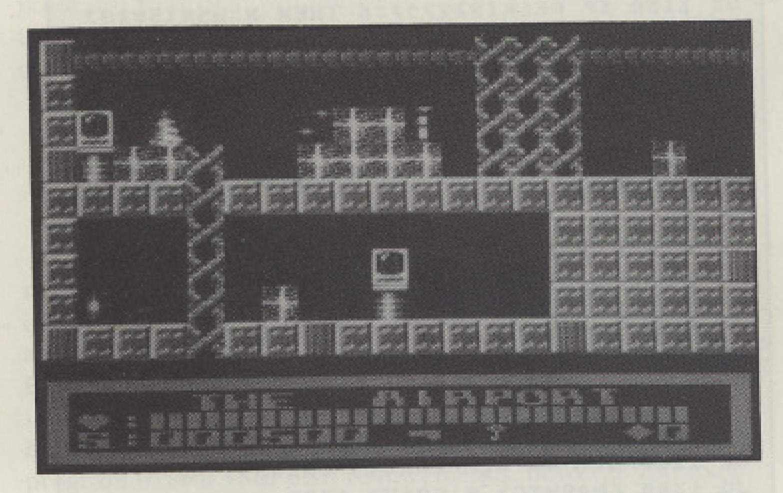
Initially, it all seems a bit strange. The screen depicts a sort of brick enclosure viewed from above, with a number of grey blocks scattered around, some red outline blocks at one end and a yellow ... well, a yellow something. Experimentation reveals that the grey blocks are crates, the red outlines are where the crates need to be deposited and the yellow object is a fork-lift truck, which is controlled with the joystick. The task ahead is outwardly simple - all you have to do is push the crates into the designated area. The catch is that you can only push one crate at a time and only from behind, in a straight line. If you're unlucky enough to manoeuvre the crate into a 'no win' situation you're allowed to back-up one move by hitting the Help key. Failing this, you have no choice but to forfeit a life. The potential score for completing a level gradually diminishes as time passes, so there's a real incentive to get a move on!

Sogon may not sound like a riveting challenge but it really is addictive! The game shares certain characteristics with Lode Runner in that it's important to adopt a thoughtful approach to every level. Talking of levels there are no less than fifty, but if you tire of those supplied you can boot the screen editor on the flip side of the disk, and design a whole load more. A perfect puzzlement package for disk users!

| | |
|---|---|
| Title: | **SOGON** |
| Publisher: | **Ke-Soft/Excel** |
| Price: | **£7.99 disk** |
| Players: | **1** |
| System: | **64K min** |

***Reviewed by Paul Rixon***

# TECHNO NINJA




A fine musical composition kicks off this multi-screen arcade adventure - another Ke-Soft game brought to your Atari by Excel (see other reviews this issue). After more loading from disk, the music then switches to a tune from Jean Michel Jarre. Enter the Techno Ninja ...

You may not be aware of this, but Techno Ninjas live on the planet of Trivator. Being an unusually active bunch, they need a considerable amount of energy and they obtain their requirements by utilising the magic stone of Sassafras. At least, they did until it was stolen. The only hope of survival now rests with the brave Warrior Garagon (alias, guess who!) who has been sent to the alien world of Sarcendor in order to locate ten eye-shaped objects which will hopefully form a new stone of Sassafras. Yes, someone has been doing overtime in the silly names department!

Having landed at the long lost airport of Sarcendor, Garagon's quest ranges over the many locations of the planet. The entrance to an old temple leads to a cavern and the pathway to a lost city. Past the city there's a secret underground lake and a storage area for the aliens' spaceship. Beyond this, we're told, is the great crystal cave. On each level your job is to guide Garagon in his mission to find the missing stone, and collect other useful items - coins increase your score, keys open locked doors (strangely enough!), hearts replenish energy units and a shield temporarily protects Garagon from the many dangers. By obtaining diamonds you can gradually upgrade your weapons which are needed to combat over fifty varieties of monster. The weapons on offer include a sword, the 'Nunchako', an 'Electro-chain' and the 'Great Kinetic Gun'.

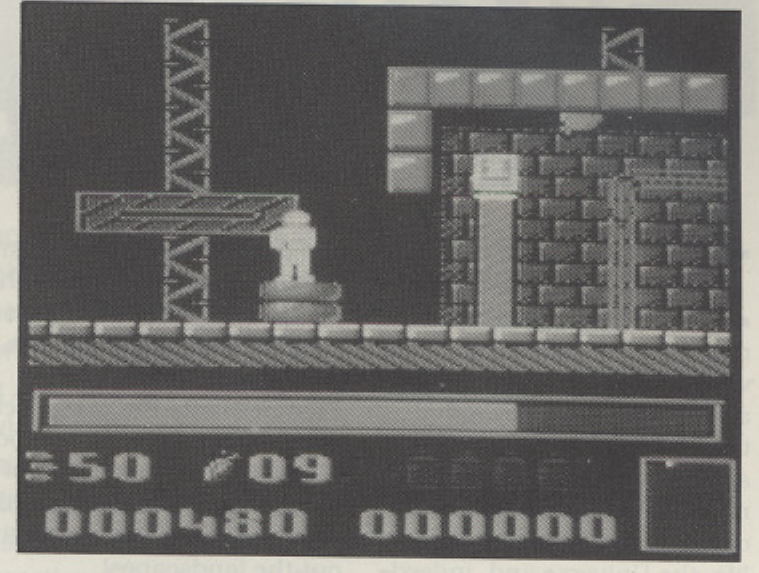
There are ten landscapes set over a total of a hundred screens. The graphics are nicely animated and although the Techno Ninja is tiny in stature, he zips around the levels in a pleasantly controllable manner. The screens flip a little slowly as Garagon moves from one location to the next. Unfortunately, the JMJ music soon becomes rather annoying - it's a pity there's no option to have just sound effects instead.

Techno Ninja is a game packed full of fast action, challenging screens, unrelenting monsters, dangerous weapons and lots of objects, not to mention presentable graphics and some well-composed music - what more could an arcade adventurer wish for?

| | |
|---|---|
| Title: | **TECHNO NINJA** |
| Publisher: | **Ke-Soft/Excel** |
| Price: | **£7.99 disk** |
| Players: | **1** |
| System: | **64k min** |

***Reviewed by Paul Rixon***

# MISSION SHARK




Just as everyone thought that Zeppelin had abandoned their 8-bit Atari support they've returned with a great new range of budget releases. MISSION SHARK is a 'typical' Zeppelin production - a huge multi-level running, jumping and shooting arcade adventure.

Unusually there's no ingenious plot - we're simply informed that the mission, code-named 'Shark', is to parachute into occupied territory, gain access to the enemy's head-quarters and locate a secret batch of movement documentation. Your agent must fearlessly confront the aggressive forces, eliminate any potential opposition, destroy the main holding areas and then retreat to safety. Intelligence reports suggest that enemy units are well prepared for imminent infiltration ...

Somewhere inside the huge complex there are four canisters containing the information requested by your Commanders. Once these have been found, you can make your way to the exit and escape via an awaiting chopper. Security is tight in the complex and electric field gates must be de-activated using coded VDU screens. There are also laser beams, roof-mounted gun blocks and hundreds of enemy personnel to deal with. To eliminate the latter you are armed with a lightweight machine gun, and for dealing with mines you have a limited number of grenades - but ammunition is in short supply so you can't afford to be too trigger happy. Your strength is shown by a bar in the status area. Collecting heart symbols helps to replenish the losses incurred by contact with the adversary, and extra ammo can be similarly obtained.

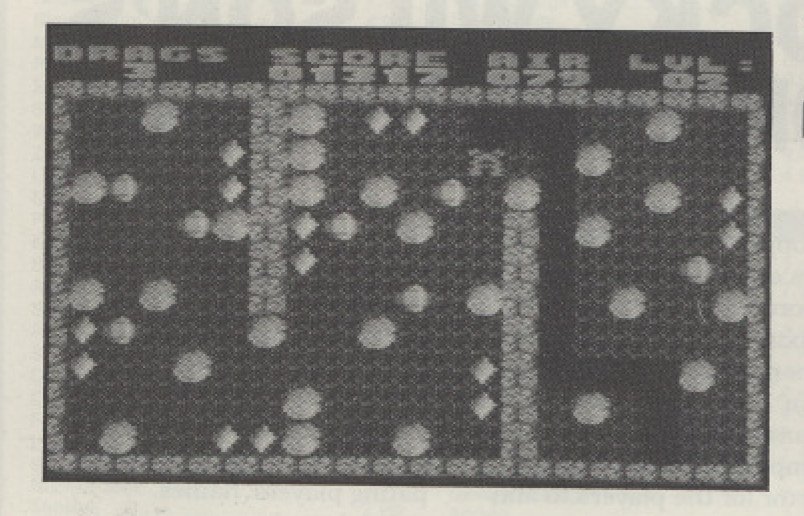
The graphics are, quite simply, superb. Your agent and the enemy soldiers are nicely drawn and animated. The authors have borrowed a trick or two from Boulderdash here, as if you leave the joystick alone for a while the agent starts impatiently tapping his foot! The numerous locations are also well designed. A coloured square graphically illustrates your progress through the enemy HQ - there does appear to be a LOT of screens! The atmospheric music deserves a mention as it's probably the best I've heard in a Zeppelin Game - brilliant!! If you get tired of the music you can switch over to sound effects.

If you were looking forward to Imagine's Green Beret and were then disappointed with its mediocre quality, you will be overjoyed with Mission Shark. It's everything that Green Beret should have been.

| | |
|---|---|
| Title: | **MISSION SHARK** |
| Publisher: | **Zeppelin Games** |
| Price: | **£2.99** |
| Players: | **1** |
| Loading: | **16'50"** |

***Reviewed by Paul Rixon***

# ZADOR




If you're one who enjoys a brain-taxing puzzle, you'd be wise to investigate ZADOR. It's a challenging game based on the Chinese Mah-Jong board which should be well known to anyone whose experienced Activision's Shanghai (see NAU #42). The Mah-Jong board is covered in symbolic tiles bearing winds, dragons, seasons, flowers, bamboos, dots and cracks.

After an excellent musical intro, the game begins. The player is presented with a board of 144 tiles and the objective is simply to turn them all face down. The perimeter of the board has initially been completed in this way. The customary catch is that the tiles can only be flipped in matching pairs, and they must either be adjacent or capable of being connected by an imaginary line which mustn't have more than two angles and mustn't cross any face-up tiles! If that sounds a bit complicated, there's no need to worry as the instructions clearly explain the rules. The computer will help on the odd occasion if you can't find a suitable move and it will also inform you of a 'checkmate' situation if there are no legal possibilities.

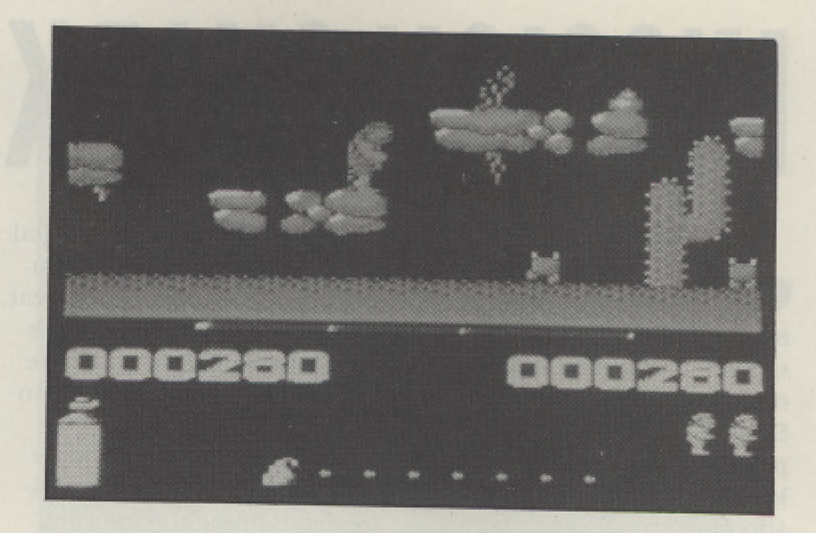
To make the task a little more demanding a strict time limit is enforced, so you have got to think fast and move faster! When you recover a tile depicting a flower or a season, this limit is slightly increased. The flower and season tiles are special in that they'll match with any other tiles within their respective groups. There are twenty stages in all, though from my experience you should be prepared for plenty of practice before hoping to glimpse the higher levels. Although the game appears to be quite straightforward, it pays to devise a strategy - otherwise you will almost certainly be caught by the timer! The difficulty level seems just about right, and this makes Zador considerably more addictive than you'd dare to admit!

The graphics aren't quite as impressive as those of Shanghai, but this says more about the brilliance of the latter than any deficiency of Zador. Like all of the Ke-Soft games reviewed in this issue, Zador has been constructed in a professional way and in terms of playability alone must be highly recommended. I hope to report on more new releases from Excel in forthcoming issues of NAU - in the meantime, you should be in no doubt these games are stunningly good!

| | |
|---|---|
| Title: | **ZADOR** |
| Publisher: | **Ke-Soft/Excel** |
| Price: | **£7.99 disk** |
| Players: | **1** |
| System: | **64K min** |

***Reviewed by Paul Rixon***

# FRED




Introducing Fred, the Neanderthal man. Fred is not your average Caveman - somehow, he's developed powers of intelligence and creativity far beyond those of his compatriots. Of a sometimes foolishly inquisitive nature, Fred has often pondered over the mysteries of life, the Universe and, indeed, why Atari Corporation never reply to anyone's letters, even when those people are responding to coupons clipped from adverts placed by Atari themselves ... (sorry folks, been meaning to get that one in for ages!!). Anyway, Fred has designed a number of special tools to help him navigate the unexplored regions of the planet and you have the privilege of guiding him on the expedition. You must help Fred negotiate the many locations and search for new tools which, by a strange fluke of nature, have been deposited in handy vases strewn throughout the landscapes!

Fred is forced to contend with a variety of nasties on his travels - Frogs, Crabs, Snakes and Vine Spiders to name a few - but there is an equally large quota of objects that can be used to his advantage. Rocks are handy for repelling adversaries and a CFC-free aerosol spray is almost equally effective! Shields, extra lives and other bonus artifacts are obviously worth collecting.

On the graphics front Zeppelin have provided one of their characteristically excellent scrolling scenarios. The lower portion of the screen is taken up with several status indicators that keep you up-to-date with your score and the quantity of special powers available. The upper part scrolls smoothly as Fred traverses the artistically shaded scenes. These feature lakes, rivers, platforms, ledges and lots of other problems. A thin bar just below the main window illustrates your progress through the 'world' as a whole.

I must mention the music since the authors have created a brilliant foot-tapping tune which, if you prefer, can be silenced in favour of suitable effects.

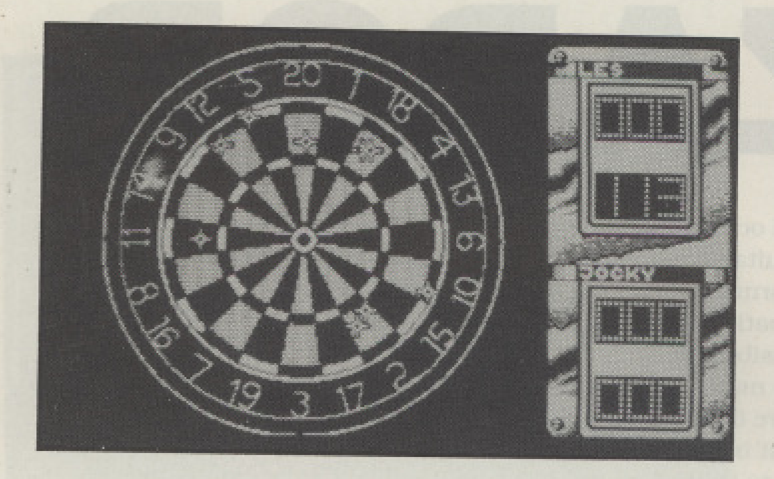
Fred may not be a very original idea, but Zeppelin have delivered the goods that everyone likes to see. Fred is an addictive game and the graphics and sonics are well up to the exceptional standard that everyone expects from Zeppelin.

Finally, just to clear up any confusion I should mention that all of Zeppelin's budget games carry a recommended price tag of £2.99, just watch out that your retailer doesn't try to bung on an extra pound. Okay Fred?

| | |
|---|---|
| Title: | **FRED** |
| Publisher: | **Zeppelin Games** |
| Price: | **£2.99** |
| Players: | **1** |
| Loading: | **12'00"** |

***Reviewed by Paul Rixon***

# JOCKY WILSON'S
## COMPENDIUM OF DARTS




If the title of this new Zeppelin game seems strangely familiar, that's probably because it's not a lot different to one they produced back in 1989! The authors have basically taken 'Jocky Wilson's Darts Challenge' (see review in NAU #38), revamped the graphics, improved the sound and added some extra options.

The selling point of JOCKY WILSON'S COMPENDIUM OF DARTS (hereafter JWCOD) is that it provides not just one, but six different dart games in a single package. In addition to standard matchplay mode - where the players must score 501 points with a minimum number of darts - you can also choose to play Football, Bowls, Ten Dart Century, Scram and Shanghai. In Football the players throw a bull's-eye to start and then score 'goals' for each subsequent double. In Bowls, points are awarded for darts landing closest to a 'jack' dart which starts off the round. Ten Dart Century is simple enough - the players must score precisely a hundred points with ten consecutive darts. Scram involves the players taking turns to be a 'Stopper', whose darts put sectors out of bounds, and a 'Scorer', who tries to gain maximum points from the sectors remaining. Finally 'Shanghai' takes place over ten rounds, in each of which the computer chooses a specific sector for the players to aim at.

If you've experienced Zeppelin's former Darts game you won't be surprised by the graphical delights of JWCOD. Play centres around a high resolution black-and-white dartboard with a score panel located at the side. Your task is to manoeuvre a dart symbol that constantly jitters around in a random circular path - line it up as carefully as you as can, then press Fire to register a score. When it's time for the computer's turn the display switches to a large cartoon drawing of Jocky W executing his throws. The introduction screen is complete with good musical accompaniment and there are various jingles at other stages of the game. One irritating point, however, is that after each completed game you're required to re-enter the participating players' names.

Avid darts fans are almost certain to find JWCOD an ideal companion, although the original 'Dart's Challenge' may be a safer bet for the novice player. Of course, it has to be said that if you're not keen on darts then you're definitely not going to like these games at all!

| | |
|---|---|
| Title: | **JOCKY WILSON'S DARTS** |
| Publisher: | **Zeppelin Games** |
| Price: | **£2.99** |
| Players: | **1/2** |
| Loading: | **16'50"** |

***Reviewed by Paul Rixon***

# MILES BETTER SOFTWARE

## TOP 20 CASSETTES

| | |
|---|---|
| Draconus | SOLD OUT |
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| Tank Commander | SOLD OUT |
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| Periscope Up | 1.99 |
| Tomahawk | 2.99 |
| Blinky's Scary School | 2.99 |
| Atari Compilation | 4.99 |
| Head Over Heels | 2.99 |
| Chuckie Egg | 2.99 |
| Football Manager | 2.99 |
| Colossus Chess IV | 4.99 |
| Titan | 2.99 |
| Gauntlet | 2.99 |
| Joe Blade II | 2.99 |
| Chimera | SOLD OUT |
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|---|---|
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| Hawkquest | 12.95 |
| Mig Alley Ace | 9.99 |
| Trivial Pursuit | 9.95 |
| Pitstop II | 6.99 |
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## TOP 10 ROMS

| | |
|---|---|
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| Spindizzy | 2.99 | 6.99 |
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| Draconus | | 4.99 |
| Brian Clough's Football Fort. | 2.99 | 4.99 |
| Preppie 2 | | 4.99 |
| Colossus Chess 3 | | 4.99 |
| Joe and the Nuclear Caverns | | 4.99 |
| Knockout Boxing | | 4.99 |
| Cuthbert Goes Walkabout | | 2.99 |
| Mig Alley Ace | | 4.99 |
| Night Mission Pinball | | 6.99 |
| International Karate | | 4.99 |
| Pitstop II | | 6.99 |
| Atari Compilation | 4.99 | |
| (5 games - Star Raiders, Tennis etc). | | |
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| Bop 'n' Wrestle | | 4.99 |
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| Space Lobsters | | 2.99 |
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|---|---|---|
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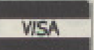
| | Disk |
|---|---|
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| Atari Writer Plus | 29.95 |
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| Sidewinder II | 2.99 |
| Despatch Rider | 1.99 |
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# DRAG




Here's a treat for all those thousands of Boulderdash fanatics who've been itching for a fresh challenge! Ke-Soft's DRAG heads the line-up of newly imported disk-based games from Excel and is basically an adaptation of First Star's winning - and often copied - concept.

No sign of the cute Rockford here though. The central character Drag appears to be a cross between a frog and a Martian who, like his friendlier predecessor, has an acute desire for diamonds. Not entirely by coincidence, these are located on each of fifty game screens so, as you'd expect, the aim of the exercise is to help Drag acquire a specified quota before his air supply is diminished. Naturally there are liberal quantities of rocks and other nasties to avoid, some of which must be utilised to reach seemingly inaccessible locations. At first the layout seems quite familiar, but there are a number of subtle differences between this and previous Boulderdash spin-offs. For example, Drag is unable to push rocks horizontally - though they fall when a path is cleared with an equally destructive consequence to anyone blocking the way! There are a number of other objects to watch out for: triangular shapes remain in a fixed position but must never be touched, circular shapes drop down and explode sideways if dislodged, whilst barrel shapes provide a handy boost to the air reserves.

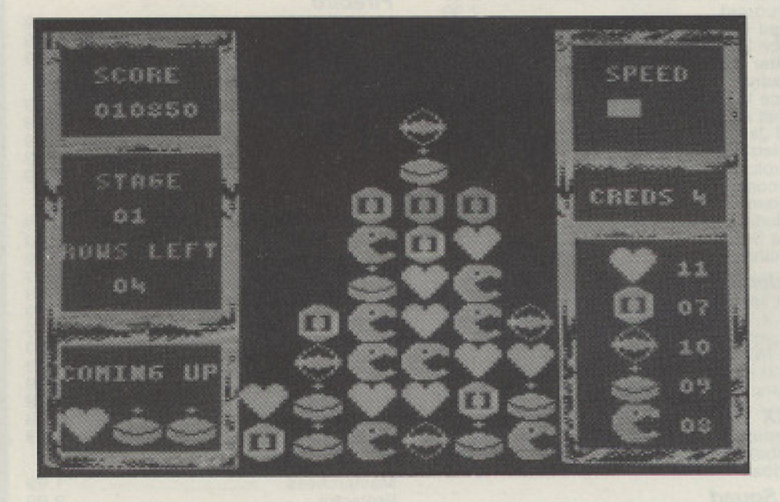
In common with the other Ke-Soft games I've experienced, the graphics and sound are really very good. A short musical composition enhances a neat title page, from where you can also view the high scores or a brief demonstration. The main screens are a little short on colour but are not lacking ingenuity. Like Boulderdash, Drag is an addictive game that requires a fast brain as well as a proficient joystick technique. The fifty screens should prove challenging enough for most - you're forced to start at the beginning but there's a password scheme so that experienced players can skip previously completed stages. Using the custom screen editor on the reverse side of the disk, you can also design an infinite number of extra levels!

Although more expensive than many games, the cost of Drag is probably justified by the quality of the product. All due credit to Excel for another exciting 'find' and their valuable on-going support for Atari users. Keep an eye open for more goodies in the series.

| | |
|---|---|
| Title: | **DRAG** |
| Publisher: | **Ke-Soft/Excel** |
| Price: | **£7.99 disk** |
| Players: | **1** |
| Loading: | **System: 64K min** |

***Reviewed by Paul Rixon***

# STACK-UP




This game is a variation on the immensely popular 'Tetris' theme, which originates from the Soviet Republic. It has proved to be a big hit on almost all machine formats, except on the 8-bit Atari where the absence of a professional conversion has meant that users have sadly missed out on all the fun. At last, Zeppelin have obligingly resolved the situation by releasing STACK-UP - yet another addition to their highly regarded catalogue of budget-priced cassettes.

The idea is very simple. Groups of variously shaped and coloured blocks drop from the top of the screen and stack up at the bottom. Using the joystick you must guide the falling blocks from side to side in an attempt to form as many horizontal, vertical, or diagonal lines of the same colour as possible. The qualifying blocks then disintegrate, earning you points and clearing some space for the following round. In each round, the space bar can be used to exchange block positions within a descending group (note: this isn't mentioned on the inlay!). A forthcoming group is first displayed on screen, so you can make a decision on the best strategy to take.

For added variety you can choose one of four alternative sets of symbols - coloured blocks, Greek symbols, road traffic signs or a mixture of all three. The game is split into twenty-two levels, each with a target number of successful lines to reach before play can progress to a subsequent stage. On higher levels some hindering elements are introduced - the rate of fall is increased, the screens have blocks already placed in them, the blocks appear randomly on screen, some lines don't count towards your target score, some blocks are indestructible, even the controls become reversed!

By necessity the graphics are simple but there are touches of visual extravagance in the title page that could only belong to a Zeppelin creation! The main screen seems quite unusual in that the borders are shaded in off-beat pastel colours. Sound effects are rather thin on the ground - there isn't any music - but the main quality of Stack-Up must be its strong lasting appeal.

It's nice to receive something a bit different from Zeppelin. We've seen enough arcade adventures just lately to last ... well, a couple of weeks at least! Stack-Up gives you the long-awaited chance to play Tetris on your Atari, and as such is an essential acquisition.

| | |
|---|---|
| Title: | **STACK-UP** |
| Publisher: | **Zeppelin Games** |
| Price: | **£2.99** |
| Players: | **1** |
| Loading: | |

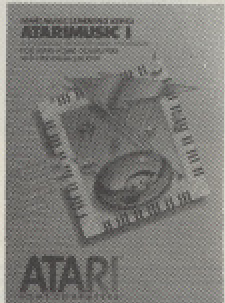
***Reviewed by Paul Rixon***

# THE ACCESSORY SHOP
## ISSUE 52

# BARGAIN SOFTWARE

*We are still managing to uncover a few new items of software for your XL/XE so check all the new items this issue. Check the inside front cover and the following pages. Some items previously advertised are now sold out but there are still word processors for you to choose, from the most simple to the most complex, plenty of games and much serious software - the choice is yours. As always we are able to offer these items at considerably less than the recommended price so check through the Accessory Shop pages.*

NEW!



DISK

## ATARIMUSIC I & II

Learn to read and understand music. AtariMusic I covers musical notes, bass and treble clefs, ledger lines and whole and half steps are explained with various drills and exercises. AtariMusic II explains major scales and major keys so that you can start putting together the notes to play or compose your own music. Suitable for ages 10 to adult, AtariMusic will help anyone to understand music, whether for school, playing an instrument, singing or just for plain fun.

*Originally £24.95*

**OUR PRICE £9.95 each**

*SPECIAL - BUY BOTH FOR JUST £17.95!*

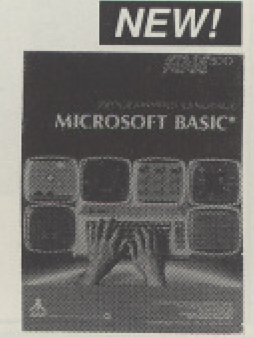
## MICROSOFT BASIC

NEW!

Microsoft Basic II is now sold out but you can still practice programming in the standard Basic if you have a disk drive. Microsoft Basic is ideal is you want to convert programs from other machines as it contains many of the commands that are missing from Atari Basic. You'll be able to share the creation of programs with other computer owning friends and maybe type in and adapt listings written on other computers.

*Recommended price £9.95*

**OUR PRICE £5.95**



DISK ONLY

## PRINT SHOP GRAPHICS

GRAPHICS LIBRARY

DISK ONLY

The official PRINT SHOP Graphics Library comprises three separate disks each with 120 graphics and a printed out reference guide of the new icons. Disk 1 covers Holidays, Special Occasions, Sports and more, Disk 3 covers Business, Symbols, Mythology and others. ONLY No.s 1 and 3 NOW AVAILABLE.These are all top quality graphics in the original Broderbund Print Shop packaging.

*Original Price £12.99 each*

**OUR PRICE £4.95 each**

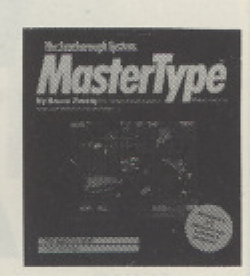
*SPECIAL - BUY BOTH FOR JUST £8.95!*

## MASTERTYPE

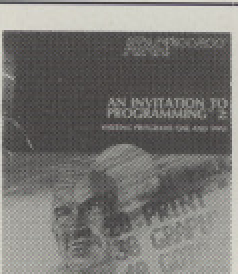
Now anyone can learn to type whilst playing a challenging game. Mastertype was one of the original 'game based' typing tutors which requires you to zap enemy words as they approach from the four corners of the screen. But it not really a game for, before you realise it, you will become quite proficient on the keyboard as you progress through 18 lessons of increasing complexity.

*Recommended price £14.95*

**OUR PRICE £2.95**



ROM CARTRIDGE



CASSETTES

## INVITATION TO PROGRAMMING 2
### WITH ONE TAPE FREE!

Cassette users wishing to learn Basic programming have never had it so easy! Alongside the fine programming books we have available, we are now able to offer the Invitation To Programming 2 set comprising TWO cassettes and two workbooks. The programs are titled Writing Your Own Programs and while stocks last we'll throw in Invitation To Programming 1 covering the basics. With these actual, on-screen, examples your programming books will come alive and you will be writing your own programs in no time. Start to program now at our bargain price!

*Original Price £25.90*

**OUR PRICE £2.95**

## LETTER WIZARD

For those who need a little more sophistication in a word processor, Letter Wizard gives you all of the basic features you would expect plus mail merge, print of selected pages, headers and footers, automatic page numbering and a whole host more print formatting styles. Although set up for Epson compatible printers or the NEC 8023, control codes can be sent direct to the printer. Comes with an easy to learn and use manual plus a handy Quick Reference card.

*Original Price £19.95*

**OUR PRICE £8.95**



DISK ONLY

TELELINK I

ROM CARTRIDGE

## TELELINK
LAST FEW!

The simplest to use comms package ever available, just plug it in and go! Telelink is a basic, no frills, communications program that will have you up and running in no time. Ideal for simple access of your local Bulletin Board or for access to the major International Information Services. Optional dump of buffer to a printer. The most basic of facilities but the simplest and quickest to use comms program available.

*Original Price £14.95*

**OUR PRICE £4.00**

## TEXT WIZARD
LAST FEW!

If you don't need a very powerful word processor but still want to use your Atari to help with producing written documents Text Wizard could be the answer. A simple to use and easy to learn word processor that has the basic features such as search and replace, move and duplicate text and straightforward print formatting including double column print out. The print commands are set for Epson compatible printers. Text Wizard will get you printing without getting you confused.

*Original Price £29.95*

**OUR PRICE £7.95**



DISK

# 99p CASSETTE SPECIALS

NEW!

## HANGMAN

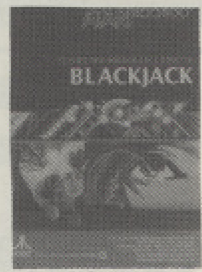
The original computer education game suitable for ages from 8 to adult. Three levels of play with 40 words in each. You play against the computer by guessing the word the computer has chosen. Uses keyboard or joystick.

CASSETTE ONLY

**OUR PRICE JUST 99P!**

## BLACKJACK

NEW!




Play one of the most popular casino games at home on your Atari. The computer is the dealer and he plays by the rules. You, on the other hand, bet money and decide whether to stand, draw another card or double down in efforts to hit 21.

**OUR PRICE JUST 99p!**

CASSETTE ONLY

## STATES AND CAPITALS

Learn the geography of the United States with this program which draws outline maps of each of the States and asks you to identify it and its capital. Useful for school geography and for anyone interested in the USA.

CASSETTE ONLY

**OUR PRICE JUST 99p!**

## SCRAM

LAST FEW!




A nuclear power plant simulation in which you must learn to operate the plant under normal and emergency conditions. The program trains you in the operation of the plant and then tests you with a qualifying exam in the form of a game. Once you are in charge you will find earthquakes breaking components and you will have to find the best way to repair the installation and keep it going to avoid meltdown

**OUR PRICE JUST 99p!**

CASSETTE ONLY

# WAR GAMES

## BOOKS STILL AVAILABLE

**130XE HANDBOOK**
*Published price £7.95* — OUR PRICE £3.00

**ATARI ADVENTURES**
*Published price £5.95* — OUR PRICE £1.50

**MICRO ENQUIRER**
*Published price £8.95* — OUR PRICE £2.00

**WRITING STRATEGY GAMES**
*Published price £5.95* — OUR PRICE £1.50

## EASTERN FRONT (1941)



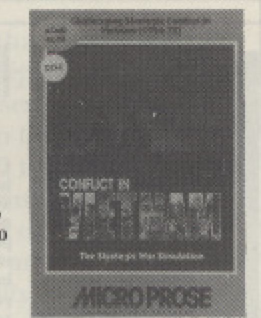

The classic war simulation by Chris Crawford that astounded Atari users when it was first released. Based on the real life battle of Operation Barbarossa on the border of Russia you must command the forces through the savage Russian winter to see whether your skills can determine a different outcome from history. Easy to understand, difficult to win but an ideal introduction to computer wargaming. Definitely an Atari classic!

ROM CARTRIDGE

*Recommended price £12.95*

**OUR PRICE £4.95**

## CONFLICT IN VIETNAM




Five battles of the Vietnam War recreated on your computer. You take charge of some of the most decisive battles as you attempt to change the course of history. From the easy opening battle you hone your skills until you are able to determine the outcome of battles that nearly destroyed the USA. Top class graphics and sound, historic accuracy, accelerated real-time action, one or two players, various skill levels and more. From the creators of F-15 Strike Eagle and Silent Service.

*Recommended price £14.95*

**OUR PRICE £4.95**

CASSETTE ONLY

## CRUSADE IN EUROPE



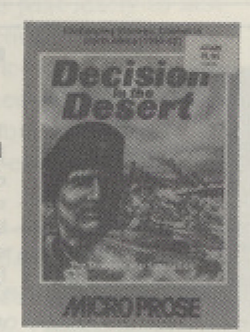

June 6, 1944, the D-Day invasion begins. The pressure is on you to lead your troops through one of the greatest campaigns of World War II. Extensive research ensures the historical accuracy of this simulation that recreates the Battle for Normandy, Race for the Rhine, Operation Market Garden, the Battle of the Bulge and the Battle for France. Excellent graphics and sound, various skill levels, comprehensive documentation, one or two players. From the creators of F-156 Strike Eagle and Silent Service.

CASSETTE ONLY

*Recommended price £14.95*

**OUR PRICE £4.95**

## DECISION IN THE DESERT




JULY 1, 1942, the Battle of El Alamein begins, but will the outcome be different with you in command? You make the decision to deploy tanks, artillery, air cover and combat divisions. Choose to lead the armies of either side or challenge an opponent to compete against you. Excellent graphics and sound, five scenarios, historic accuracy, one or two players and more. An excellent simulation from the creators of F-15 Strike Eagle and Silent Service.

*Recommended price £14.95*

**OUR PRICE £4.95**

CASSETTE ONLY

**NEW!**

# LAPIS PHILOSOPHORUM



One of the best graphic adventures released on the Atari which is suitable for all abilities. A mystical adventure set in a small country in which the King's step son has poisoned the King to gain the throne. The Magicians have failed to cure the dying King but can you? You will need to find the philosopher's stone among 83 different screens and with seven possible solutions.

*Original Price £9.95*

**OUR PRICE £1.99**

DISK ONLY

# SKYWRITER



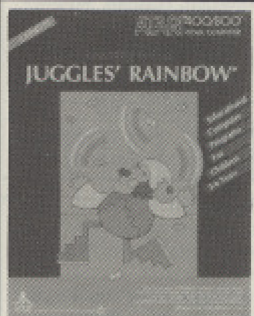

Help your children learn how to create complex words with a fun game that will keep them happy while they learn. A two syllable word is given and the child has to recreate that word from its parts which float across the screen on clouds. A simple concept but one which teaches in an interesting way. Suitable for ages 5 upwards.

*Original Price £12.99*

**OUR PRICE £4.95**

ROM CARTRIDGE

# JUGGLES RAINBOW




A first computer learning experience for children aged 3 to 6 that teaches the concepts of above, below, left and right plus letter recognition allowing the child to enjoy learning with colours and music and games they can create and play themselves.

**OUR PRICE £5.95**

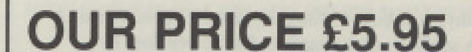
*NOW ALSO ON DISK!*

DISK OR CASSETTE

# JUGGLES HOUSE




Another for 3 to 6 year olds teaching the concepts of inside, outside, upper and lower with Juggles' House and Toyshelf. each game also includes a 'playground' where children can try out these new ideas for themselves.



**OUR PRICE £5.95**

*SPECIAL OFFER - PURCHASE BOTH JUGGLES PROGRAMS FOR JUST £9.95*

CASSETTE ONLY

# CAVERNS OF MARS




Winner of one of the first Atari programming competitions, this was one of the first vertical scrollers and remains a much sought after original game. Descend through the caverns avoiding mines and picking up fuel. Highly playable and addictive, only one or two have made it to the bottom of the cavern to discover the secret that awaits them.

*LAST FEW WITHOUT BOX BUT WITH FULL ORIGINAL MANUAL - LOWER PRICE*

**OUR PRICE £4.95**

DISK ONLY

# TOUCH TYPING




Everyone who uses a computer needs to brush up on their typing and now you can learn to type like a professional typist with this complete tutorial. Touch Typing presents a self paced method of learning by letting you practice typing letters, sentences and paragraphs. The computer determines words per minute, number of errors and your weak points. Random sentences are generated to drill you in those areas. Contains two cassettes and instruction manual.

*Previously £19.95.*

**OUR PRICE £4.95**

CASSETTE ONLY

# TIME and MAGIK




Three of Level 9's famous adventures in one package. This includes LORDS OF TIME, RED MOON and THE PRICE OF MAGIK to give you many hours of puzzle solving and exploration of the unique worlds created by Level 9. All these games have received top reviews. Now you can try them at a very special price

*Originally £11.95*

**SOLD OUT**

DISK ONLY

# TYPO ATTACK




A typing trainer based on the Space Invaders concept in which you hone up your typing skills by blasting falling letters. An enjoyable way to learn that will quickly enable you to recognise the keys without having to look at the keyboard.

*Normally £12.95*

**OUR PRICE £6.95**

ROM CARTRIDGE

# SILENT BUTLER

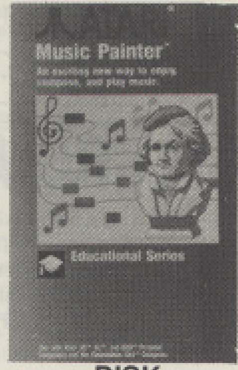



The all round personal finance planner that keeps track of three bank accounts, maintains income records, reminds you of birthdays, anniversaries and important dates and generally keeps you up to date on your financial status.

**OUR PRICE £6.95**

DISK ONLY

# MUSIC PAINTER




An exciting educational program that helps to teach music by using colours instead of notes. Change the fifteen supplied songs to feature different instruments, make the notes longer or shorter or transcribe your own songs. No musical knowledge required to make your own great music. Children or adults alike will get great satisfaction from being able to create their very own music.

**OUR PRICE £7.95**

DISK ONLY

# A Further Selection

*More software for your added enjoyment ranging from adventures to arcade games and serious software. Something for everyone in this selection with several new titles this issue.*

## MURDER AT AWESOME HALL — NEW!

Colonel Awesome has just been murdered and you have to investigate the crime. You must question the suspects, decide which weapon was used for the murder and you must then decide in which of the 20 rooms the murder was committed. Each time you play the game there is a different mystery to solve. Includes an on-screen floor plan and electronic note pad and suspect lists. The computer version of the famous Cluedo game.

CASSETTE ONLY

**OUR PRICE JUST £1.99!**

## ENERGY CZAR — NEW!

Do you think that you could do better than the politicians? With Energy Czar you get the chance to prove yourself by controlling the energy resources of the USA. You can subsidise or tax the energy resources, freeze prices, control pollution, regulate supplies and see the results of your actions. A National Opinion Poll decides whether you are fired or proclaimed the saviour of the USA!

CASSETTE ONLY

*Recommended price £12.95*

**OUR PRICE JUST £1.99!**

## ARCHON — NEW!

A battle of magic between opposing mystical powers fought out on a chess board. A contest between Light and Dark with spells to cast, magic to learn, evil foes to conquer. Archon is one of the most highly original and highly rated games for the Atari and has received top class comments whenever it has been reviewed. For one or two players.

ROM CARTRIDGE

*Recommended price £14.95*

**OUR PRICE £7.95**

## KABOOM

Challenge the Mad Bomber as he tries to bomb you out of sight. Can you catch his bombs and dowse them in time? Or would you like to be the Mad Bomber and try to flatten one of your friends? Lots of excitement for one or two players in this addictive arcade game that won awards for Best Audio and Visual Effects when it was first released. Simple yet addictive.

ROM CARTRIDGE

**OUR PRICE £2.95**

## PLANETARIUM — BACK IN STOCK!

Fun or education? Both really in this fascinating look at the heavens. Over 1200 stars, 88 constellations, the solar system and more than 300 deep-sky objects are depicted in this program that allows you to view the universe. You can make stellar and planetary maps, study eclipses, learn about latitude and longitude and much more.

1050 DRIVE ONLY
Please state when ordering if you have a US Doubler fitted

*Normally £16.95*

**OUR PRICE £ 6.95**

## ZAXXON

One of the all time classics for the Atari, Zaxxon set new standards when first issued and was copied many times. Pilot your craft across the unique 3 dimensional battlefield shooting enemy fuel tanks, anti-aircraft tanks and missiles before launching off through space for the ultimate conflict with a mighty robot - few have got this far! Zaxxon, often copied, never bettered and NEVER at this incredibly low price!

DISK OR CASSETTE

*RRP £7.95 cass/£9.95 disk*

**OUR PRICE £2.99**

## SCREEN DUMP 1020 — NEW!

Owners of the 1020 printer/plotter will be delighted with this utility which has been unavailable for a long time. Now AtariArtist pictures can be dumped to your 1020 in FULL COLOUR. Just boot up the tape, select your favourite picture and let the software do the rest.

CASSETTE ONLY

*Originally £14.95*

**OUR PRICE JUST £2.95**

## TIMEWISE — REDUCED PRICE

Why not use your Atari as an electronic diary? Timewise allows you to keep track of all your appointments and important dates on a daily, monthly or yearly basis. Now you can dispense with your diary and let your Atari do the work. If you have a printer Timewise allows you to print out the information in a variety of ways.

DISK ONLY

*Originally £22.99*

**OUR PRICE £3.95**

## HOME FILING MANAGER/PAY OFF

DISK ONLY

The Home Filing Manager record keeping system that simulates index cards on your Atari, keeps track of almost anything together with The Pay-Off Adventure - your chance to sample an adventure in classic style. This two disk set also includes some top class graphics demos.

*SPECIAL PRICE - ONLY £1*

## PROOFREADER

Users of Atariwriter will be delighted with this, the long lost spelling checker for the Atariwriter cartridge! Proofreader may be loaded alongside Atariwriter to give you instant access to a dictionary of 36,000 words. If that is not enough you can add your own words as you go. Errors are highlighted on screen for correction, unusual words can be saved and you can look up spellings.

DISK ONLY

**OUR PRICE £5.95**

## MACRO ASSEMBLER

The Macro Assembler will allow you to create your own machine language games and applications five times faster than with the Assembler Editor cartridge and it can assemble as many as 1600 symbol definitions with no limit on program size. You can duplicate code, optionally assemble code and modularise your program. A Program-Text Editor is included.

DISK ONLY

*Normally £19.95*

**OUR PRICE £7.95**

## BASIC CARTRIDGE

Why would you want a Basic Cartridge when Basic is already built in to your machine? Well some programs, especially some early public domain programs won't run on the XL/XE but they will if you plug in the old version of Basic. Much more convenient than having to boot in the old Basic from disk and, at this price, worth having just as a backup.

ROM CARTRIDGE

**OUR PRICE £3.95**

## PIRATE ADVENTURE

"Yo ho ho and a bottle of rum ...". You'll meet up with the pirate and his daffy bird along with many strange sights as you attempt to go from your London flat to Treasure Island. Can you recover Long John Silver's lost treasures? Happy sailing matey. Scott Adams Graphic Adventure #2 brings you a superb Beginner's level adventure complete with graphics and ideal for all ages

DISK ONLY

*Original price £19.95*

**OUR PRICE £7.95**

## STRANGE ODYSSEY

At the galaxy's rim, there are rewards aplenty to be harvested from a long-dead alien civilization. Fabulous treasures ... advanced technologies far beyond human ken ... All this and more awaits the brave galactic Adventurer. But will you be able to recover the wealth and return home? Prepare yourself for a Strange Odyssey! Scott Adams Graphic Adventure #6 is a Moderate level adventure.

DISK ONLY

*Original price £19.95*

**OUR PRICE £7.95**

## HARDBALL

American League baseball at it's very best. A highly regarded game - check out the review in Issue 45 'THE best sports simulation on the Atari'. Look over the pitchers shoulder as he throws the ball to the waiting trio of batter, catcher and umpire. In HardBall you can hit, run, steal, blunt and dive, change the fielders and do everything you can do in the real game. For one or two players.

ROM CARTRIDGE

*Normally £14.95*

**OUR PRICE £7.95**

## GALAXIAN

Another arcade conversion that retains all of the addictiveness of the original and still stands as one of the all time classics. Blast the galaxians as they advance in formation and peel off to attack. With one or two players and 10 skill levels you'll be entertained for a long time. Includes an easy option for beginners.

ROM CARTRIDGE

*Normally £12.95*

**OUR PRICE £6.95**

## STAR RAIDERS II

LAST FEW!

Disk version of this follow up to the greatest computer game. Your mission is to pilot the hottest fighter in the galaxy - the Liberty Star - to destroy the entire Zylon Master Force. Your weapons are: Pulse Lasers, Ion Cannons and Surface Star Bursts. Warp between two systems, protecting friendly bases whilst dropping Star Bursts on the enemy. More great action in Star Raiders fashion.

DISK

*Normally £14.95*

**OUR PRICE £5.95**

## TAIL OF BETA LYRAE

LOW PRICE!

Our A-Z of Atari Software series says "The ultimate 'Scramble' clone with superb graphics and music. This humdinger of a horizontally scrolling shoot 'em up was written by Philip Price, and the music was by Gary Gilbertson. They later went on to write the 'Alternate Reality' games." This is one of the few original 'classics' right up there with the top arcade games of all time. Give your eyes, ears and reactions an unforgettable treat!

DISK OR CASSETTE

*Original Price £7.95*

**OUR PRICE £1.99**

## JOUST

Don your helmet and hoist your lance and climb aboard an ostrich in this unusual arcade game! Do battle with the evil Buzzard Riders in deep space. Pterodactyls to the right of you, alien eggs to the left, you must learn to fly so that you won't die so very far from home. All the arcade thrills for one or two players.

ROM CARTRIDGE

*Normally £12.95*

**OUR PRICE £6.95**

## RESCUE ON FRACTALUS

Ask old hands what was one of the best games ever for the Atari and a good proportion of them will say Rescue on Fractalus. This game from Lucasfilm set new standards in computer games combining a space flight simulator with a rescue mission. Super, ever changing, 3-D scenery as you fly through the mountains to land on the planet and rescue stranded pilots.

ROM CARTRIDGE

*Normally £14.95*

**OUR PRICE £6.95**

## BALLBLAZER

Another from Lucasfilm, this top quality split screen game takes place in a games arena of the future. You are strapped into a Rotofoil hovercraft-like vehicle that skims over the surface of the playfield at 50 metres per second. The object is simple, just release your Plasmorb through your opponent's goal. Two-player simultaneous play with first person perspective for both players.

ROM CARTRIDGE

*Normally £14.95*

**OUR PRICE £6.95**

## SUPER BREAKOUT

Breakout was the original simple yet totally addictive game and this enhanced version will provide even more addictive fun. Several variations on the basic theme are available for one to four players (up to 8 on the 400/800!). NOTE that this game requires paddle controllers.

ROM CARTRIDGE

*Normally £9.95*

**OUR PRICE £3.95**

## STAR RAIDERS 2

The original Star Raiders is updated with better graphics and sound. Your job is to clear each sector whilst ensuring that the enemy do not overrun planets in another part of the galaxy. It will take skill in deciding which sector to warp to, can you afford to clear a sector or will you have to leave to defend a planet and return later! A great follow up to an all time classic.

ROM CARTRIDGE

*Normally £14.95*

**OUR PRICE £6.95**

## LODE RUNNER

Another classic, perhaps the best of all platform games. You are a highly trained Galactic commando deep in enemy territory. Your mission is to infiltrate all 75 of the enemy's subterranean levels to recover every last piece of gold. You are equipped with a laser drill pistol but you'll need cunning, speed and agility. Lode Runner includes a unique extra that allows you to create your own levels.

ROM CARTRIDGE

*Normally £14.95*

**OUR PRICE £7.95**

## TENNIS

Great sports fun either against the computer or another player, singles or doubles. Forehands and backhands, driving approach shots, angled volleys, overhead smashes and tricky lobs - they are all here. You control your position on the court and where you want to hit the ball. The electronic scoreboard dis plays the results. All the action without the sweat!

ROM CARTRIDGE

*Normally £12.95*

**OUR PRICE £6.95**

## ONE ON ONE

Play basketball with two of America's top players in this great sports simulation which features realistic offensive and defensive moves, fatigue factors, hot streaks, a shot clock, even instant repay and a shattering backboard! Like the game of basketball itself, One-on-One rewards you for playing with your head as well as your hands.

ROM CARTRIDGE

*Normally £14.95*

**OUR PRICE £6.95**

## FIGHT NIGHT

BACK IN STOCK!

Fight Night brings you all the thrills of the boxing ring as you face five of the most brutal fighters ever. Its five separate battles are total war with relentless action. The Boxing Construction Set allows you and your opponent to create your own perfect boxers, selecting stamina, intellect and style. Step into the ring to pit your perfect boxer against the computer or another opponent. 1/2 players.

ROM CARTRIDGE

*Normally £14.95*

**OUR PRICE £7.95**

## DESERT FALCON

A version of the classic Blue Max that finds you flying across the desert Indiana Jones style searching for hieroglyphics hidden in the desert sands. You need to survive long enough to destroy the howling Sphinx. The longer you survive and the further you proceed, the more perilous your mission becomes. If you destroy the Sphinx you get to gain the bonus round for even higher points. Four levels.

ROM CARTRIDGE

*Normally £14.95*

**OUR PRICE £7.95**

# ORDER FORM

## ALL ITEMS FOR XL/XE

### SERIOUS SOFTWARE

| Qty. | Title | Price | Total |
|---|---|---|---|
| | ATARIMUSIC 1 | £ 9.95 | |
| | ATARIMUSIC II | £ 9.95 | |
| | ATARIMUSIC BOTH | £17.95 | |
| | BASIC CARTRIDGE | £ 3.95 | |
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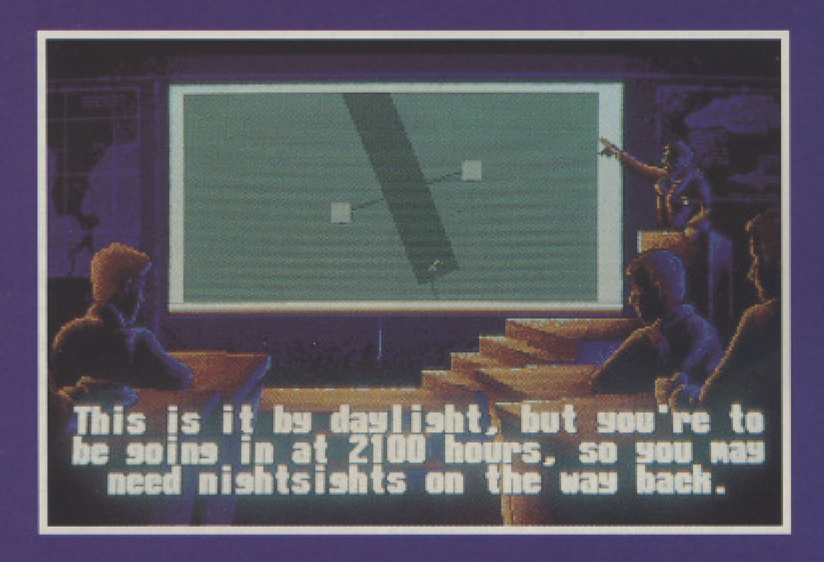
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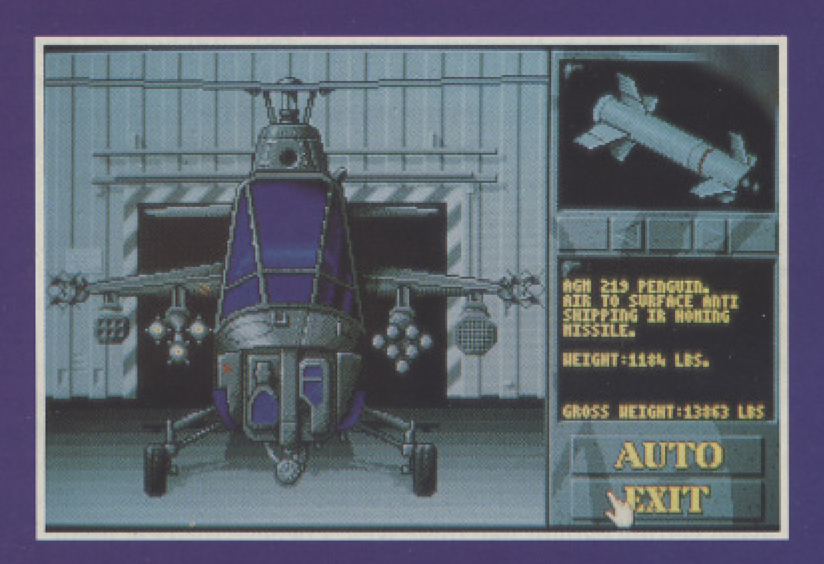
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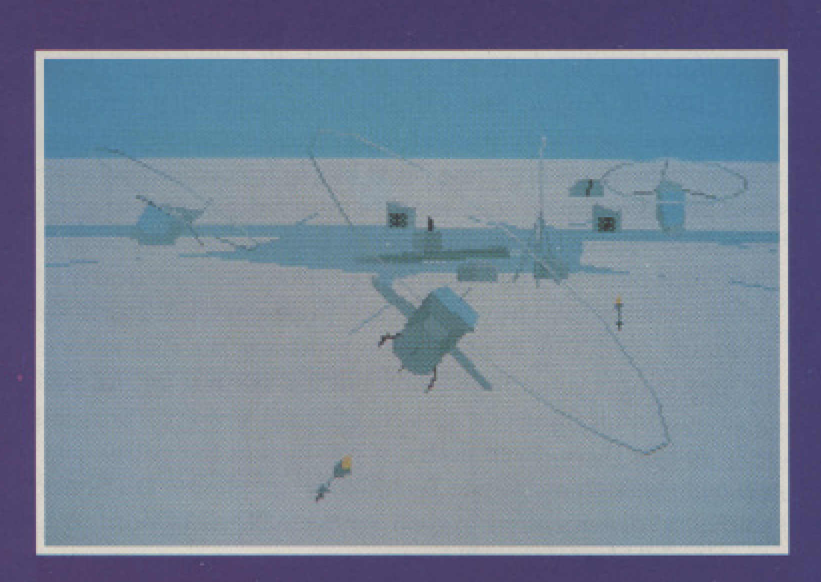
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# AH-73M THUNDERHAWK

*CORE Designs have just released what they claim is the ultimate helicopter simulation, the pictures look good and we'll try and bring you an in-depth review next issue, meanwhile here's what it's all about.*

*The United nations has decided to commission an elite team of pilots to head a new crack assault team to defuse crisis situations around the world without provoking a full scale war. This team will be known as Merlin. The very latest technology has been put at Merlin's disposal which includes a newly commissioned, multi-role helicopter gunship employing state of the art technology and firepower - the AH-73M THUNDERHAWK.*

*The game begins with an intro sequence showing the presidential defence advisor landing by helicopter at the White House for an appointment with the President. The President announces a 'Situation Critical' and the game commences. After entering your name as a pilot, you are taken to the briefing room where you choose your mission from six worldwide locations. Once selected, black and white satellite footage is shown to help guide you through the terrain.*

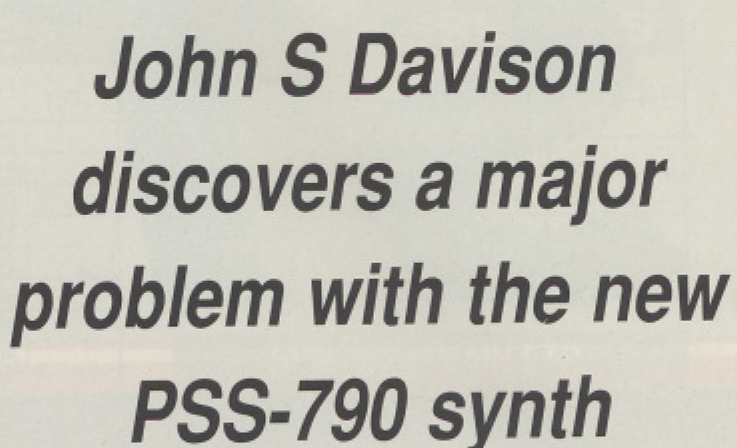
*Each campaign is split into 10 missions and the overall achievement in a campaign is determined by how well you do in each section. For example if you take out a mission objective but miss some key targets you will affect the team's performance as a whole and you risk being taken off the team and returned to West Point for further training.*

*Most of the controls of the game are with the mouse, including weapon selection and targeting with the keyboard used mainly for views from the helicopter and of various maps. Simulated views are included from every angle of the helicopter as well as from the target itself and the missile (who's being watching the briefings from the Gulf War then?).*

*All in all, looks promising.*

*All pictures from AH-73M THUNDERHAWK*



# John S Davison discovers a major problem with the new PSS-790 synth

The Yamaha PSS-790 is currently one of the best selling MIDI equipped keyboards - understandably so, as it can make some great sounds. If you're one of the many people who bought one to use with your computer you probably don't think so highly of it though, as it exhibits a rather nasty problem when used with sequencing software.

The problem was brought to my attention by fellow Page 6 contributor John Sweeney, who recently bought a PSS-790 for his sons. However hard he tried he couldn't successfully record a new sequencer track played in from the keyboard while listening to a track already recorded - a fundamental requirement when MIDI sequencing. The new track always had the first track's contents mixed in with its own. The problem compounded with each additional track recorded, depriving each track of its independence and making the PSS-790's multitimbral capabilities virtually unusable. Using different software had no effect either.

The problem lies in the PSS-790's internal operating software, held on a ROM chip inside the keyboard. For some reason Yamaha designed it such that MIDI commands sent to the instrument's MIDI IN port are echoed back out through the MIDI OUT port along with anything played from its keyboard - not what you want at all! Previous PSS series instruments did this too, but they could also circumvent the problem by using a form of MIDI "Local Off" mode (which Yamaha call MIDI mode 99) activated by a special button on the front panel.

This button has two effects. Firstly, it switches the instrument into multitimbral mode, allowing many different sounds to be played simultaneously from a sequencer. Secondly, it disconnects the instrument's keyboard from the sound generation circuitry and ensures only MIDI messages resulting from key depressions are transmitted via MIDI OUT - exactly what's needed for MIDI sequencing. This has to be used in conjunction with a sequencer's "MIDI echo" facility (aka "soft MIDI THRU"). Otherwise you can only hear what's playing from the sequencer tracks, and not what you're playing along with it from the keyboard.

But guess what? Yamaha have left that vital button off the PSS-790, and didn't provide its operating system with an alternative way of handling the required switching. This renders the instrument almost useless as the main instrument in a computer based MIDI system. Arrrggghhh!

## REPLACEMENT ROM

The good news is that Yamaha have admitted there's a problem and have produced a replacement ROM to fix it. To get the ROM you need to order part number IX001520 (PSS-790 System ROM), either via your local Yamaha dealer or directly from Yamaha at their Milton Keynes HQ, phone number 0908-366700. Fitting it involves some soldering, and if you can't manage this yourself Yamaha can do it for you, if you deliver the instrument to them.

Unbelievably, Yamaha expect you to fork out £23.50 for the ROM! However, it does include some minor new functions, so it's not just a straight problem-fixing ROM swap. Even so, I think they've got a cheek expecting their customers to pay for such a serious design flaw. Come on Yamaha, do the decent thing - make the ROM available FREE to anyone needing it! The goodwill generated will far outweigh any cash you might make from it.

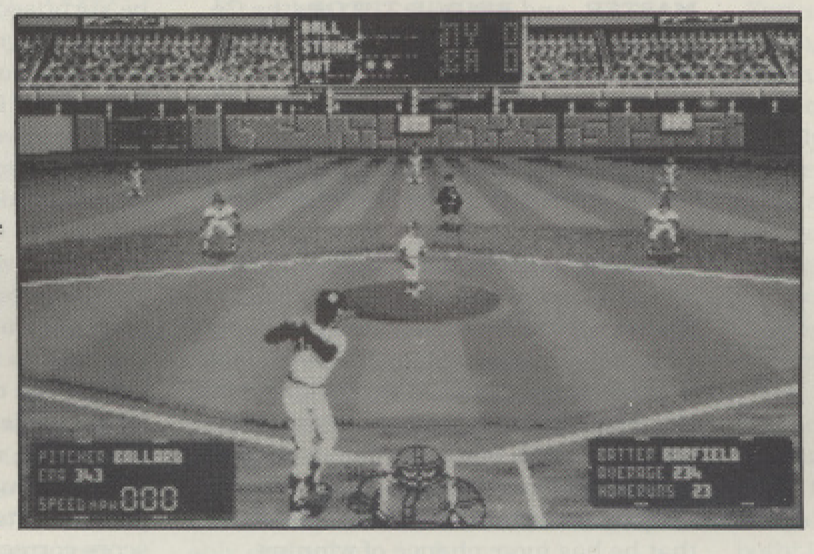
A further twist to the story is that the PSS-790 has just been superseded by the PSS-795. This is mainly a cosmetic update of the 790, but it does add the odd new feature, such as a sustain facility. More importantly, it's already fitted with that new ROM. The price has been cut too - at £199.95 it's £30 cheaper than the PSS-790!

## THE MORAL?

This whole episode illustrates how careful you have to be when buying hi-tech music equipment. The fact that the PSS-790 is "MIDI equipped" means nothing in this case - it just won't do the job most Atari users want it for. But how can you avoid getting caught like this? Well, I believe the best insurance is to buy from a reputable musical instrument dealer. A good dealer will be able to demonstrate the instrument actually performing the tasks YOU want it to do, so you can check it out BEFORE buying. Many dealers now have MIDI demo rooms equipped with Atari ST (and other) computers, and are happy to hook up anything you'd like to try out - using your own favourite music software if required. Just try getting that sort of service at Boots or Dixons!

For your part, you have to play fair. Don't use the dealer's demo facilities then buy from a cut-price electrical goods store down the road! Buy from the man providing the real service - he may charge you a little more, but it's worth it for the peace of mind. And if things do subsequently go wrong he'll usually help you fix them. Even better, if you look in the enthusiast magazines such as "Music Technology" or "Sound On Sound" you'll find dealers offering good service AND a discount. If you're really lucky there'll be one near you, so you can enjoy the best of both worlds.

# R.B.I. 2 BASEBALL




Baseball is that other strange American sport they show on Satellite and late night Channel 4. It is the one that looks like rounders played by teams that seem to be wearing their pyjamas. However strange it might be it is game well represented on the ST with the Hard Ball games being the best I have seen to date.

Domark/Tengen have produced a game with a strong front end that appears to be a good simulation. Packaged with free cap offers and an instruction book that explains the rules with only a couple of major errors, the presentation is fine. My own knowledge of Baseball grew owing to my American Football following of the L.A. Raiders and their bi-sporting star Bo Jackson. I was most impressed to see him well represented in this game both by statistics on paper and by playing style from the computer.

Baseball is as inherently simple a game as cricket, and conversely as difficult to grasp conceptually. Damon's mugs guide is as follows. Nine people comprise a team although there is a wide range of substitution available. The object of the batting team is to score runs as per rounders while the pitching (or bowling) team wish to stop them by retiring three batters. This happens nine times for the away team and eight (if they have won) or nine times for the home team.

There are several rules about no balls or bad hits that will either progress team members through bases or help batters retire quicker. At best the thing to remember when batting is to hit the ball hard and straight and run a lot and when pitching throw it hard and catch a lot. Like most American games this sport produces prodigious amounts of statistics from simple batting and pitching averages to complicated equations surrounding base running speed or pitcher endurance.

RBI seems to make a strong attempt to put these factors into balance and present teams with differing make up. It allows the players to play either two handed (the best method) for a best of 7 series or against the ST (more frustrating since it is rather good), with teams of their choice selected from the actual teams in the league. Here the game has the noteworthy endorsement of the governing body of baseball the MBL which is rather like having the Test and County Cricket board endorsing a cricket simulation.

Gameplay is joystick or keyboard orientated and consists of the pitcher signifying readiness the batter looking ready and then positioning the pitcher - selecting the height, speed and type of pitch - and the batter by moving around the plate (like a crease) until in the best position to belt the ball and take off to first base. Usually, especially against the computer's pitchers, you just miss three balls and the next guy comes for ritual sacrifice! Should you make a hit then the joystick offers the choices of stopping at first base or trying to continue to subsequent bases in the hope you won't be run out. If yours is the fielding side several obstinate players all head off towards the ball and you hope to pick it up and return it in time to run out or stop a batter's advance. Again the computer is better at these things than the human. If a human can score against the computer there is a definite feeling of achievement and the feeling related to scoring the home run is not far from elation!

Graphically the game is slick, offering windowed shots of base runners and pitcher. Action is fast and until the pitchers have tired a little, very fast. In the real game the balls appear at approximately 100 mph and thus the simulation does need to be fast. The crowd roar in appropriate places and the electronic scoreboard shows typically American style graphics.

As a baseball simulation RBI is not a great deal different to the others on the market. In some respects more glitzy and I think possibly more accurate in its statistical relevance but in others very much part of the common mould. In some ways it lacks the intelligence to select the correct fielder although in other plays it shows great sophistication of tactics.

I was most impressed with the way the California Angels, a team noted for high risk base stealing but fairly weak batting, offered a great number of steals whenever the chance presented itself. The computer vs computer mode gave a fairly accurate display of the statistical base and as such was entertaining to watch. One possible use for this would be for Baseball board gamers wishing to decide the outcome of other matches in a season let the machine paly them out. On the other hand it is nearly as entertaining as watching the real thing.

My feeling about this is that until a proper cricket sim comes out bat and ball players may well have to use Baseball as the only relief to frustrations felt with the end of the season. I enjoyed this game and spent many hours trying to get Bo to beat the Toronto Bluejays.

- ***SIGHT & SOUND** - both are good, well drawn screens and the scoreboard adds to the fun with sampled crowd noises and the lovely 'thwup' of a well struck ball*
- ***GAMEPLAY** - accurate and fastish. The idiocy of the fielders does detract at times though*
- ***VERDICT** - I loved it, never won a game against the machine though, otherwise great. If Baseball tempts you go out and try this*

| | |
|---|---|
| Title: | **R.B.I. 2 BASEBALL** |
| Publisher: | **Domark/Tenge** |
| Price: | **£29.99** |
| Reviewer: | **Damon Howarth** |

# TRADITIONAL BOARD GAMES ON YOUR ST

## Part 2

**O**ne of the games we looked at in the last issue was Atari's Backgammon. This is part of a series from Atari called Mindgames. Also in the series are **GO-MOKU/RENJU**, **BRIDGE MASTER**, and **BRIDGE TUTOR** (the Go advertised on the back of the boxes was, alas, never published).

## START BIDDING

Let's start with Bridge. There are two parts to a hand of Bridge: first the bit where you argue about which suit should be trumps and how many tricks one side is going to try and win - this is known as the 'bidding'; then the 'play' where you play whist with one of the hands face-up - whoever won the argument gets to play his partners cards as well as his own so that he has more chance of winning.

Bidding the right 'contract' (i.e. how many tricks and which suit for trumps) is crucial to the game, so many conventions have grown up to allow you and your partner to give each other as much information as possible within the very limited range of things you are allowed to say during the bidding. One of the standard systems used by many people in this country is called Acol. The system used by the Atari games is called Standard American by the Tutor and Acol by the other. Although it may be an American variation of Acol it is not one which is commonly recognised in this country, and since the **BRIDGE TUTOR** does not provide a full description of the conventions, nor any guidance as to why it wants you to bid or play its 100 hands in the way it does, I suspect it will not actually be of any use at all unless you can get a good book on Standard American bidding conventions.

**BRIDGE MASTER** is rather more useful in that it deals random hands and rather than forcing you to bid and play what it thinks is correct it allows you to proceed as you wish. It will of course still respond in its own strange version of Acol during the bidding; again the documentation is inadequate and you will need to find a book which matches its conventions in order to get the most out of it.

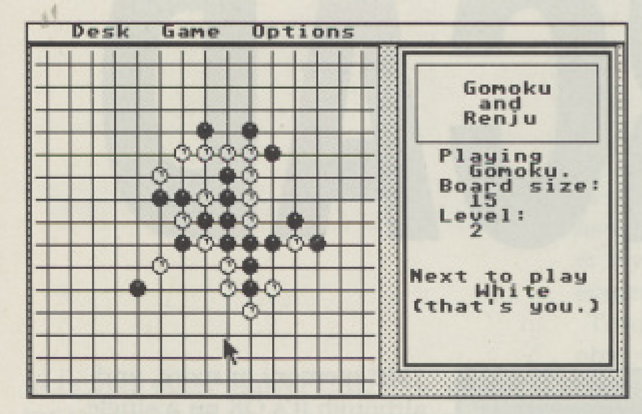
As with so many traditional games which have been converted to the computer, most of the initial programming has gone into making it actually play the game. The only one which has really progressed significantly past that point is Chess - this has had so much attention paid to it and so much competition to produce a world beating program that there are now some very strong Chess playing programs around. We should not be surprised to find, therefore, that the Bridge programs do not play a particularly strong game - hopefully that will come in time! (In fact neither of these seems to have been very well designed to make them easy to play either!)

If you would like a cheap card game which HAS been implemented beautifully and plays well then have a go at **CRIBBAGE** on Page 6's PD Diskette ST92 - there are no instructions with it so you will need to find out how to play from a book if you don't already know. Cribbage is an excellent game and this version has everything, right down to details like calling you "Muggins" and claiming your points for itself if you don't work out your score correctly!

The final game from the Atari Mindgames series is **GO-MOKU**. This is an oriental noughts-and-crosses game played on a large board wherein the objective is to get FIVE of your men in a line. The program plays quite a good game on levels 1 and 2 with good response times. But on level 3 it was taking more than a minute to make some of its moves, and on level 4 it took an hour and ten minutes to make its fourth move! I tried level 5 once but gave up waiting! I doubt if many people are going to be willing to spend that long playing noughts-and-crosses and since there is no Save option I don't really see the point of the higher levels - did anyone actually test this?




My other niggle is that it is not very polite! You see, when I was taught to play Go-Moku (many years ago!) I was taught that you should always announce a line of three or four stones which, by itself, could force a win in two or one moves respectively; this is to ensure that you don't win too easily just because your opponent hasn't noticed an obvious move. Unfortunately the program has not been taught to be polite!




*Left - BRIDGE MASTER*
*Above - GO-MOKU*
*Right - GO*

For those who master the basic game there is a second version provided - the rather more serious game of Renju. In order to prevent too easy a win by an expert Black player (Black always goes first and has a significant advantage), there are restrictions in Renju on the patterns which Black is allowed to form.

Go-Moku is good fun, and (provided you don't mind the slowness of the higher levels) the variations in board size, Renju and playing either Black or White will give you many hours of enjoyment.

Something that looks like Go-Moku, but isn't, is **PENTE** on Page 6's PD Diskette ST55 (along with an excellent version of Simon and various other goodies). I believe it is a fairly recent American invention - as usual they decided they could improve the game by adding things to it (I have never forgiven them for adding Jokers to Mah-Jongg)! The main difference is that if you have exactly two pieces in a row they can be captured and taken off the board if the enemy can get a man at both ends of them. (I think there may be some other variations, such as extra ways of winning, but I can't check as Pente is not currently available in this country.)

I haven't found a computer version of Mah-Jongg yet, though CDS are working on both Mah-Jongg and Bridge at the moment. However if you would like a game which uses Mah-Jongg tiles you will find **SHANGHAI** on Page 6 Diskette ST43. Shanghai is a patience game played using Mah-Jongg tiles and has nothing at all to do with Mah-Jongg itself (which is basically Chinese Rummy/Canasta). The tiles are shuffled and formed into a pattern on the screen - you must remove matching pairs from the edges to clear the whole board. Some tiles are stacked on top of each other - different heights being marked by different border colours. The borders are not as clear as they might be, but the game is quite playable once you get used to them. Not a bad little game for £2.95.

## AT LAST ... GO!

And so, finally, to the best board game in the world - **GO**.

Though you may never have heard of it Go is played by over 10 million people in Japan, nearly 400 of whom earn their living as Professional Go-Players - the top title is worth 38,000,000 Yen (over 300,000 dollars)! There are another 10 million players in China, 4 million in Korea, and many more everywhere in the world - there are over 50 Go Clubs in the British Go Association, so there is probably one not too far from you!

The rules of Go are very simple - you start with an empty 19 x 19 board. Black and White take it in turns to place a stone on any empty point. There are two objectives: mark off areas of territory (each point you own is worth one point); and surround enemy groups (each stone captured is worth one point). That is basically all there is to it! But working out whether a group of stones is safe from capture can be quite complex, and learning how to win will take you a lifetime! Just as with Chess there are many books on how to improve your play, especially on the openings; these usually take place in the corners of the board which are strategically important.

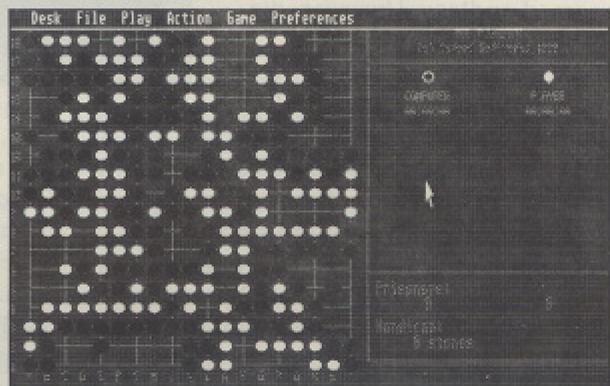
Go is on a similar intellectual level to Chess, with the added complexity that there are usually at least four major battles going on (as a result of the opening moves in the corners), and that these battles interact with each other.

A beginning player is assigned a rank of 35-kyu (student) and if you play regularly you can improve by about a kyu a week up to around 20 kyu. You need to play and study a lot more to get further up the scale and it usually takes a few years to get up to near 1-kyu. The next step after 1-kyu is 1-dan (master) and then it really gets tough!

Sadly, despite much effort by the Japanese, Go is such a complex game that current technology cannot produce a Go playing program much better than around 10 to 15-kyu. Whereas in most Chess positions there are only about 30 possible moves, for the first 100 moves of a Go game there are over 250! So the usual look-ahead techniques are not a lot of good. Go relies too much on intuition and pattern recognition, so some major advances in Artificial Intelligence will be required before we get a dan-level computer program.

Fortunately for 99.9% of the people reading this article, you are NOT 10 to 15-kyu yet and it will take you a long time to get there, so, unless you are already an experienced Go player, you will be able to enjoy many, many games of Go against this program. You can practice by playing on smaller boards, setting the computer's strength from 1 to 100, and using the standard Go handicapping system which allows players of different strengths to play against each other. The program will also give you hints on where to play next.

If you like board games you should definitely try Go, either against other players or against the computer - preferably both! If you wish to learn more about Go or find your local Go Club then contact the British Go Association Membership Secretary: Brian Timmins, The Hollies, Wollerton, Market Drayton, Shropshire, TF9 3LY (0630-84292). And if your local shop doesn't have any Go sets or books on Go, try the Ishi Press, 20 Bruges Place, Baynes St., London NW1 0TE (071-284-4898).



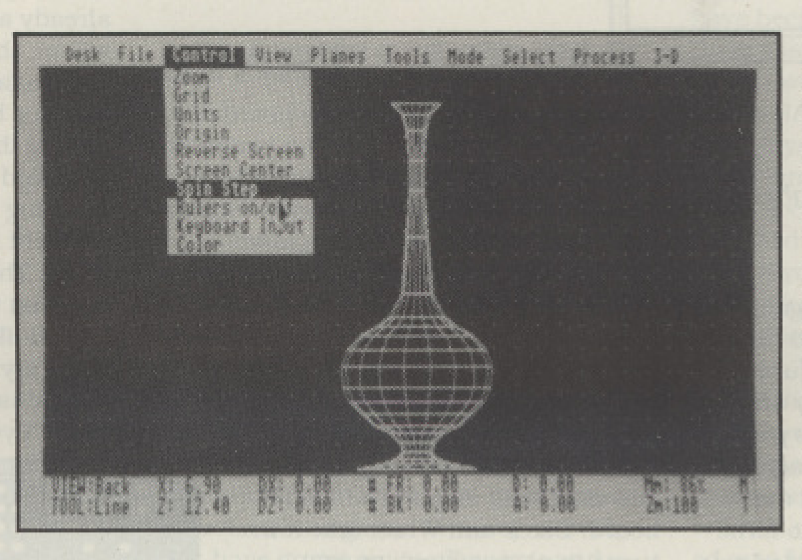

**by John Sweeney**

**BRIDGE TUTOR** *(Atari) - £24.99*
**BRIDGE MASTER** *(Atari) - £24.99*
**GO-MOKU/RENJU** *(Atari) - £24.99*
**GO** *(Oxford Softworks) - £26.28*
**PD Diskettes from the Page 6 Library - £2.95 each**

# MASTERCAD

*John S Davison investigates a low cost CAD package that's surpringly versatile and which can drive several output devices*

Some time ago a generous friend gave me a six pen colour plotter, which was surplus to his requirements. I dreamed up all sorts of grand ideas about how I could use it - producing overhead projector foils for business presentations; diagrams to illustrate articles I write; drawings for DIY projects; music transcription; posters; computer art - the possibilities seemed endless. However, disillusion soon set in, as I couldn't find much software that could drive it, and that I did find was very expensive.




Plotters are hard copy devices like printers, but in operation they're more akin to the drawing of vector graphics in colour on a monitor screen than to normal printing. Unfortunately though, you can't just reroute screen graphics commands to plotters, as they use their own specific command sets. As in most areas of computing a de facto standard has emerged for this. It's the command set originally developed by Hewlett Packard for their own range of plotters, known as HP-GL (Hewlett Packard Graphics Language), and most makes of plotter (including mine) now use it. To get any use at all from my new toy I was forced to write BASIC programs which sent raw HP-GL commands to it. Needless to say, the plotter soon fell into disuse as I just don't have the time for programming.

Then Microdeal started advertising Master CAD. I couldn't believe my eyes when I saw it included plotter support and cost only £29.95! Surely it couldn't be any good at this price? When I noticed it originally sold for around £150 I couldn't resist trying it, and the requested review copy arrived shortly afterwards!

## COMPUTER AIDED DESIGN

Master CAD is a computer aided design program, originally written in Venezuela, of all places! It allows you to quickly produce three dimensional(3D) designs by translating two dimensional (2D) drawings into a 3D workspace. These designs may then be viewed from any angle; printed or plotted on paper; and written to disk as objects which can later be incorporated into other designs.

It's supplied on two single sided disks, but these can be combined onto one double sided disk or installed on a hard drive if required. It runs on any ST(E) with 1MB memory or more, and although it's OK on a single floppy drive system, two drives make life easier. It runs in medium resolution using three fixed colours - white, blue, and orange (with no way of changing them) or high resolution monochrome. I much preferred the latter version for its clarity. The package also includes an excellent 276 page illustrated (and indexed!) manual, which contains detailed descriptions of Master CAD's functions as well as a clearly written step-by-step tutorial on how to use the major procedures.

There are two main working screens - a design screen providing 2D drawing and 3D projection facilities, and a 3D screen for viewing the 3D objects you've created. In addition there's a completely separate Output program for printing and plotting hard copy of your designs.

The design screen provides a window into a cartesian space measuring about 2300 MILES in each positive or negative axis direction. Well, that's what it claims in the manual! In other words, you have a HUGE drawing board to work on, but what you can get on it depends on your ST's memory size, of course! The screen consists mainly of a drawing window, but along the bottom edge is a two line "monitor" area which continuously displays useful information. For instance, X, Y, and Z coordinates of the current cursor position; the cursor's relative position from a previously selected point; the current drawing tool in use; the current view selected; and other helpful stuff. At first, there seems to be no menu bar, but moving the cursor to the top of the screen causes it to suddenly appear. This provides access to all the facilities needed to create your 3D design.

The File menu contains not only the expected load and save object facilities, but also the means of saving your designs as special printer/plotter files used by the Output program, or for saving Degas format picture files (in PI2 or PI3 format) for use with art programs, desktop publishing packages, and other utility programs. You can also import ob-

jects from other Master CAD files, allowing you to build up sets of common objects for incorporating into other designs.

The Control menu provides such facilities as toggling on/off the screen rulers, grid, and snap functions used to help you draw accurately; for choosing metric or Imperial units for measurements; zooming and centring the screen to show the required level of detail; and other similar facilities.

The remaining menu bar items are mainly concerned with producing the design. Drawing tools provided include line; rectangle; regular polygon with up to 99 sides (includes circles and ellipses); irregular polygons; polylines; and arcs. You can also add limited amounts of text - and even this can be projected into 3D if required! Within a drawing you can select individual points, lines, complete objects, or the whole drawing and perform various processes on the selected items. These include move, copy, delete, rotate, multicopy, multicopy with rotate, rescale/reproportion, plus horizontal and vertical mirroring about a chosen axis.

## AUTO DIMENSIONING

One feature worthy of special mention is Master CAD's automatic dimensioning feature. Mark any two points in your drawing and Master CAD will measure the precise distance between them then draw in dimension lines labelled with this measurement. This could be a real timesaver if you're producing plans from which something will be built.

Transforming a 2D drawing into a 3D object is achieved quite simply. You either spin the 2D object about a chosen axis, or project it between two user defined planes. So, if you spin a circle about a diameter you produce a sphere. Spin it about an axis which doesn't intersect it and you make a toroid. Project it between two parallel planes and you produce a cylinder. Get the idea? The degree of spin and number of steps in the spin may be user specified, as can the angle between the planes, giving plenty of flexibility to produce the shapes you require. Objects produced in this way may be used like building blocks; you can combine them to make even more complicated designs. Objects needing a complex profile may be produced by drawing one half of the profile with the polyline tool, then rotating this around the appropriate axis. That's how I produced the pottery designs I've included here as examples.

Having created a 3D object you then use the 3D screen to view it from literally any angle and distance - even from WITHIN the object itself if required! So far your design has been shown in wire-frame form, but if you want it visualised in solid form Master CAD will shade its surfaces to give a "solid 3D" appearance. If you don't like the default shading pattern you can choose from a selection of others.

## PLOTTING AND PRINTING

When you're happy with your design you can save it for processing by the Output program, which handles both printer and plotter output. It supports Epson FX-80 and compatible dot matrix printers, and produced clean, accurate drawings on my Star SG-10. It also supports the Atari SLM804 laser printer, but I didn't have the opportunity to try this out. It uses GDOS, so would probably support any printer with the appropriate printer driver, although the manual didn't mention this.

On the plotter side it supports three specific models of Hewlett Packard plotter: the ColorPro, the 7550A, and the 7570 - or compatible models. Mine's an ICL GP-1760, HP compatible via HP-GL. Connection to the ST is via the RS-232 serial port, using a serial cable wired "null modem" style. I had to experiment with the plotter's DIP switches and the ST's RS-232 configuration settings before the plotter fully understood what Master CAD was sending it. Eventually though everything worked fine, and the program produced the expected high quality plotted output.

I found Master CAD very easy to use after a little practice. It's reasonably fast in operation, although it slows considerably as you increase the number of 3D rotation steps towards its maximum value of 99. In terms of overall facilities as a drafting program it's fairly basic, and doesn't have the advanced features found in more upmarket packages, e.g. Bezier curves, auto-splining, and such like. But there's still an awful lot you CAN do with it!

One slight disappointment was that the Output program only prints or plots wire frame versions of your designs. However, you can get a draft quality print of the shaded 3D version via the Draft Print function in the main program. Also, the program only ever uses one pen colour when plotting - so you can't plot objects in one colour and dimension lines in another, for instance.

Overall, Master CAD provides a great introduction to the world of computer aided design - and no, that's NOT just because it uses a plotter! It's because of its ease of use; the high quality results it produces; and the facilities offered for its relatively low price. It's a real bargain, so if you're looking for a low cost entry level 3D CAD program this could be the one.

**MASTER CAD**
**Microdeal**
**£29.95**

**Reviewed by**
**John S Davison**

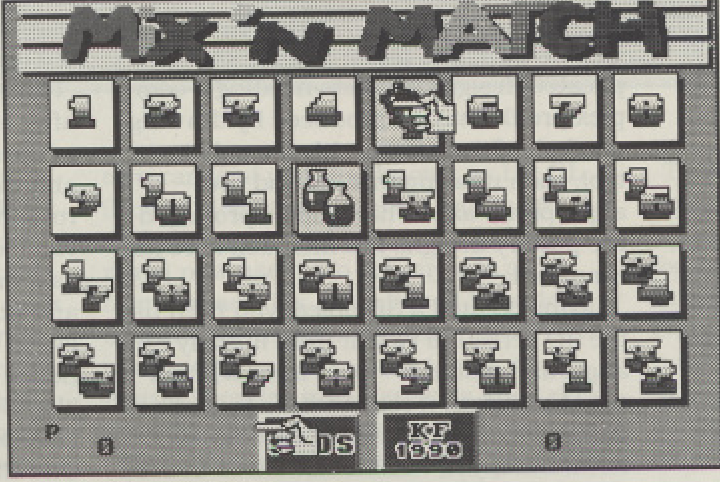
# PD Paul Rixon's WORLD

**ST games enthusiasts have never had it so good! Over the past few months, public domain libraries have been inundated with top quality games from Budgie UK and independent authors. To mention them all would require a whole magazine in itself - funnily enough Future Publishing, the company behind ST Format and the awful New Computer Express, and Europress, who produce Atari ST User, have both launched magazines dedicated to PD/ Shareware software. These mags should now be in the shops but it remains to be seen whether they will rise above the standards set by their sister publications!**

**The PAGE 6 ST Library differs from those run by other organisations because it doesn't carry *all* of the new programs that become available. The reason is simple: if it's rubbish, it doesn't get in! This fact seemed clearly evident as I sorted through the dozens of games that have recently made it into the catalog. Anyway, let's get straight on with the reviews ...**

## THAT CUBE!

Everyone's heard of Rubik's Cube but not many have managed to solve it without resorting to underhand tactics with a screwdriver. Although the initial cube craze has thankfully died a death, there must be many owners of Dr. Erno Rubik's creation who would love to crack it, once and for all. **RUBIK'S CUBE** is a simulation of the famous puzzle. Why should you want a simulation? Well, the program won't solve the puzzle for you but it does provide a collection of tools that can be used to discover the solution. They include facilities to tag squares and follow their progress, undo mistakes, set marks to help find the way through a solution, save partially completed cubes to disk and create complicated macros of twist sequences. The program is accompanied by an extremely lengthy (over 30 pages!) manual that explains the issues of 'cubology' and how to get the best from the tools provided. Rubik's cube is a fascinating object to the mathematician which illustrates a branch of mathematics known as 'group theory'. The manual doesn't go into this but lists some useful references if you should want to find out more. It's a very interesting read!




*Quite a difficult concentration game*

## NON-VIOLENT

There are many other non-violent games in the public domain that deserve a mention. A good example is **MIX 'N MATCH** - a two player concentration game written in STOS. The players take it in turns to uncover pairs of tiles which conceal various pictures. If two are found that match, the pictures remain uncovered and the active player receives a points bonus. The super graphics are a perfect demonstration of what can be achieved with STOS and digitised sound effects add an extra sparkle to the presentation. It may sound boring but it really is addictive! **PLUMB CRAZY** is another STOS puzzle by the same author. The screen is split into fifty-four squares and your job is to place sections of piping on the grid in the order they are presented to you. Meanwhile, the water supply gradually creeps across the screen and then starts to push through the network you have created. On the higher levels, a greater number of sections must be completed. The STOS source code is included so you can find out how to write a great game, but even if you're not interested in STOS you should still be impressed!

## IT'S ... IT's ... YOU KNOW!

Do you think you're a bit of an expert when it comes to popular music? If so then why not put your knowledge to the test with **NAME THAT TUNE**. The program selects a tune from the 110 stored on disk and presents you with a scrolling menu from which you must choose the corresponding title. It's ideally played with a human opponent, so the first person to make a correct identification wins the points. The longer it takes to decide on an answer, the less points are offered. If it all seems too easy you can make adjustments to the tempo, introduce skipped notes and also invert the staves, for a really weird effect! The tunes can be played through the ST's sound chip but the most impressive results are achieved by hooking up a Midi synthesizer. The program will accept any music files in standard Midi file format, so you can easily create custom song disks. Alternatively, you could obtain **NAME THAT TUNE - TV THEMES** which is a supplementary disk containing familiar music from American TV shows.

## LOTS OF MONEY

If you've heard of Taipan, a game that began life on the Radio Shack computer (well, something had to!) and was then converted to other formats including the ST, you should have a pretty good idea of what **TAIPAN II** is about. It's a trading simulation and the objective is simply to make lots of money. This is achieved by buying and selling fifteen commodities at various cities across three areas of the globe. Each city has its own particular

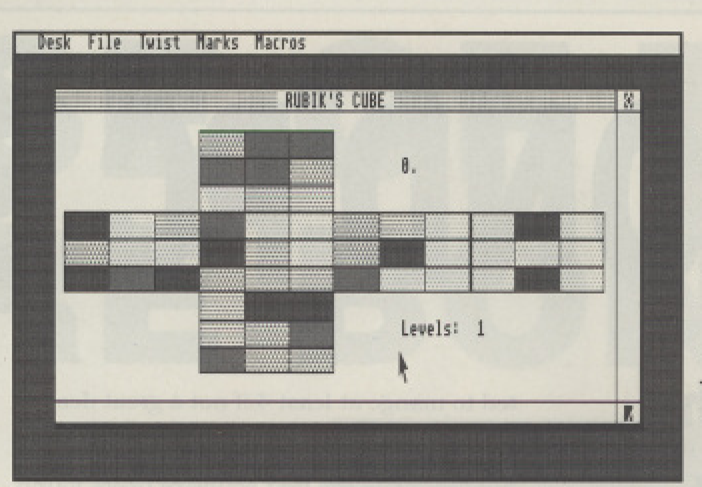
requirements and there are random shortages and surpluses that can affect the trading price and hence your potential profit! There are lots of other considerations to bear in mind and the documentation explains everything in substantial detail. Taipan II is a well-implemented program and makes an interesting change from the run-of-the-mill arcade games.

## BLAST!

And now, as they say, for something completely different! If I mention the name Jeff Minter you will immediately think of wild shoot 'em ups, weird graphics, humorous sound effects and stunningly fast action. Needless to say, Jeff's **LLAMATRON** is a BRILLIANT shoot 'em up in every sense. Blast everything on screen (except for the sheep and camels!) with your bullet-spitting Llama but watch out for the nasties. The graphics are amazing, the sampled sound effects amusing, and the whole game is absolutely ... well, typical Jeff Minter!

## GAME DEMOS

Commercial game demonstrations are often just slide shows and don't give you much idea of what the games will actually be like. On the other hand, some demonstrations are better than other commercial releases! A good example of the latter case is Jeff Minter's Photon Storm - a Llamasoft production that features in demo form on a disk entitled **PHOTON STORM & AQUANAUT**. Photon Storm is a multi-way scrolling 'zap everything that moves' game set in outer space. The controls of your craft are a little tricky to handle, but once you have the hang of it the game turns out to be fast, addictive and a lot of fun. There's only one level of play but it shouldn't restrict your enjoyment. The other game on this disk is another demo shoot 'em up (by an undisclosed author) set on the sea bed! The graphics are incredible as you control a fully animated diver weaving through the rocks, fish and other underwater nasties whilst blasting them with your spear gun. It looks like a terrific game, anyone seen the full release? Another goodie - at least in demo form - is **SWIFTAR**. This is a vertically scrolling shoot 'em up similar to many other ST games, where the aim is to eliminate ground installations and attack the inevitable waves of enemy craft. The graphics are the main highlight of the game, though its addictive quality comes a very close second! Unfortunately you'll need at least a one megabyte machine to experience this one.

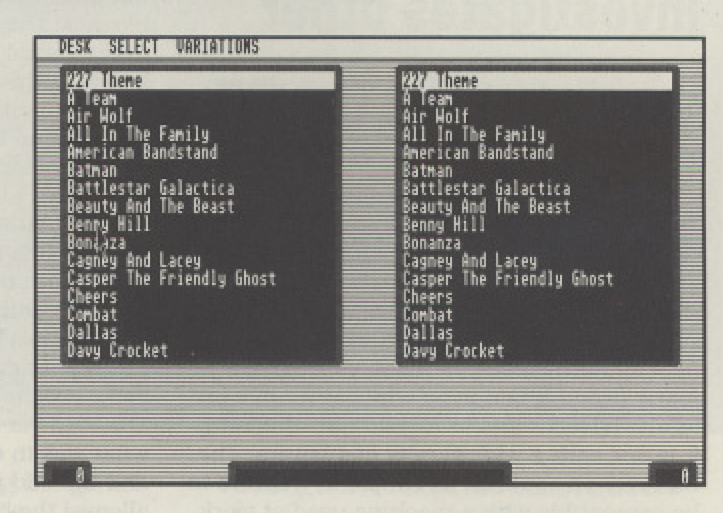



*Left - RUBIK'S CUBE - easier if it's prised apart!*

*Below - NAME THAT TUNE - great fun for all the family, particularly if you have a synth*

## FALLING ROCKS!

Boulderdash fans can find plenty of interest in the public domain. Probably the best Boulderdash clone of them all is **DOUGLAS ROCKMORE**, from Budgie UK. The game plays quickly and smoothly (scrolling at fifty frames a second) and is equally as challenging as other Boulderdash variants you'll have seen. Navigate the caves, collect the diamonds and watch out for the baddies. It could easily be a commercial release, but thankfully it's not! Douglas Rockmore will only run on one megabyte machines but 520 owners don't miss out - in fact, they get twice as much with the updated version, **DOUGLAS 2**. There are 48 levels in all with more great graphics and addictive gameplay. You can't go wrong with this one.




## FOR STE USERS

Yet another Boulderdash spin-off is the subject of a disk intended specifically for STE owners - **STE MAD & MUSIC**. Mad was written by Paul Lay, who is well known to regular readers of this very magazine. The original version of Mad appeared as a type-in listing in the magazine (#35) and is arguably the best listing in the history of computer publishing! The STE version makes use of the extra colours and features available and is a real tour-de-force of Atari programming. Elsewhere on this disk there is a clever utility that will play digitised music in the background as you work from the desktop, and there's also a few fixes for STE-related problems such as the infamous medium-res bug.

## BLAST OFF!

Although I'd ear-marked at least ten other disks for inclusion in this article, unfortunately I've got to end it here! I trust you will have found something of interest amongst the goodies mentioned above. Have fun!

### HOW TO GET THEM

***All of the disks featured in PD World are available from the PAGE 6 ST library. Each has a unique reference code which you should use when ordering or making enquiries. Please contact PAGE 6 if you don't have a copy of their Accessory Shop leaflets and check the system requirements for each disk. THE PAGE 6 CATALOG DISK containing a full list of disk names and contents is available from the library, priced at £1. The disks referred to in this article are:***

***ST321 - RUBIK'S CUBE***
***ST345 - SWIFTAR***
***ST385 - DOUGLAS ROCKMORE***
***ST386 - PLUMB CRAZY***
***ST398 - MIX AND MATCH***
***ST413 - PHOTON STORM & AQUANAUT***
***ST458 - TAIPAN II***
***ST460 - STE MAD & MUSIC***
***ST464 - NAME THAT TUNE***
***ST465 - NAME THAT TUNE - TV THEMES***
***ST492 - DOUGLAS 2***
***ST500 - LLAMATRON***

***Prices for standard disks are £2.95 each or £2.50 each for ten or more***
***Write to PAGE 6, P.O. Box 54, Stafford, ST16 1DR***
***Telephone 0785 213928 or FAX 0785 54355 with credit card orders***

# EMULATIONS

# BEYOND PC SPEED

## Damon Howarth investigates other emulators on the ST

Following my adventures into PC Speed I delved into other modes of altering the ST's outlook on life. The following is as much the results of my researches as practical experience.

The first question that would spring to many people's minds is "why bother to emulate?". I accept this as a valid question and it is one with a wide variety of answers. The first reason could be as simple as a desire to be compatible with a machine used at work and thus be able to prepare or study those things there may be a rush for or similar. Alternatively, it may be that you have upgraded your system but wish to run favoured software of old. For some students it may prove a cheaper way of obtaining more than one machine to use alternative programming techniques with. There are many other thoughts, as a letter I received this month suggested some of the writers favourite games were on Amigas or PC's. and how else could he run them?

The ST has either hardware or software to allow it to emulate many different machines. The PC is the best catered for although the Mac is also emulated and would deserve serious consideration on its own. It is also possible through some PD software to emulate 8-bits as well, ZX81 is possible (why anyone would want to confuses me, apart from nostalgia, but the program is fun). I believe there is an Atari 8 bit emulator available but I have not seen this and it is possible to run a version of BBC basic on the machine. In this article I will have a look at the PC implementations since those are the methods I am most at home with.

The "Grandaddy" of PC emulators is the original software based PC Ditto which was incredibly compatible but disk based. In effect the operator loaded the program which interpreted all the PC commands into ST meaningful actions and routed them to the relevant places. As can be expected this gave a tortuously slow rate of action. It had a Norton rating of between .25 and .5. Perhaps at this stage I ought to explain Norton rating before readers become lost. As so many IBM clones appeared with different CPU's and clock speeds a system for measuring the actual speed of a machine was devised. The base rate was the 4Mhz clock of the basic XT PC which was a rating of 1. Nowadays even base raters are expected to mange at least 4 if not a great deal better. Now the ST has an 8Mhz clock and thus could be expected to operate fairly well but obviously the first software users found life most frustrating. PC Speed became the first internal emulator and as I pointed out last time this operates at a creditable although still ponderous rate. I would not recommend PC speed for outright graphic orientated or heavy number crunching performances although it is now a cheap way into emulation. PC Ditto II was another entrant in this field that never quite took off. These both need inserting inside the machine with soldering irons and the like and act as a sort of co-processor.

The other entrant at low levels was the far more expensive Supercharger which attached via the Hard disk port and offered what was in effect a motherboard with ram and the odd port for adding PC Cards (cards allowed the basic PC to become more interesting with more Ram or sound or better graphics etc.). This was an expensive option but functioned with the Hard drive as well. In the early days there was not a great advantage to this product.

As the PC developed to the rather cleverer 286 and the exceedingly clever 3 and 486 chips, emulation followed. I even upgraded to an AT Speed in order to experience the changes. AT Speed configures as well as it slower namesake and allows for a greater variety of screen emulation. In colour it is possible to have the rather low quality of CGA or the more interesting Tandy mode which allows for 16 colours and is a cross between CGA and EGA. Should the software allow this option then the effect is very good.

Perhaps this is a point to quickly offer an explanation of the various graphic interfaces for a PC. Historically the first machines had a very poor black and white text only screen output, these were eventually changed to the blocky CGA (Colour Graphics Array) basically four colours from a limited palette that would have been embarrassed by some older 8 bits. This is the basic standard graphics mode. As time sped on the EGA and VGA modes appeared which offered higher resolution and better colour choice, their mono modes were also of far higher definition.

With this very complicated subject glossed over we can return to AT Speed. If you own the mono monitor then the system can emulate many different standards of mono graphics up to and including a very high definition VGA which actually works in a multitudinous grey scale. Sadly the SM124 was not really created for the size of screen in this mode thus it is necessary to scroll the picture to see the whole screen. In practice this is a little annoying it but does allow in depth appraisal of large documents. The AT Speed and, I believe, AT Once offer very similar packages and install just as the PC speed although different versions are needed for ST's and STE's. This emulation chugs along at Norton 6.5 or so which is faster than several XT laptops and just about as good as the prototype 286 machines. The Emulators even run windows and windows software. Indeed with the 4meg STE and Hard Drive (really necessary for good Window usage) the AT Speed gave me a chance to use 3 meg for a sort of co-processing I had not experienced with Gem. This set up also allowed me to instal Speed as an accessory and to set the hard drive up as two distinct beasts either a DOS boot or the tame ST storage device. I believe that AT once is also capable of this. AT Speed can run the vast majority of software, I have yet to find something it dislikes, and this month's articles have all been written under AT speed and Word for Windows.

I believe that the Supercharger is in the process of offering higher specs for its emulation including a 386 accelerator. This I would believe when I see it work, insomuch as the clock speed on even the lowliest 386 sx chip is 16Mhz which is twice that of the ST and I would fear the emulator would run away with itself. Then again owing to the alternative structuring of the Supercharger it may well use the ST as a keyboard and little else, it would be interesting to see the beast at work.

As opposed to the PC speed reviewed earlier this year, the AT speed is far more a thoroughbred and well worth the slight extra cost, indeed it may well have been upgraded as I write so do check with Compo Software or Ladbroke's of Preston for the latest specifications. With hindsight and the gloss of advertising ringing in my ears I may have preferred the Supercharger option although it is approximately £100 more than its competitors. Depending upon the uses that you have in mind some Hard disk provision will help enormously although all of the emulators are usable with single or dual floppies.

It is a thought that possibly a very cheap XT may provide the same emulation with truer upgradeability for less than some of the emulators and the ST colour monitors can quite happily handle the CGA modes of a video card. On the other hand AT Speed provides an extremely good interface for a cheap if slightly slow and less featured 286 than any purchase of the same price could offer.

I enjoy Speed and have been favourably impressed by its fairly fluid screen handling and the happy way it accepts the commands from the mouse. Furthermore Compo Software are always extremely happy to offer helpful advice. Should any readers be either totally confused or somewhat interested please feel free to contact me through the magazine.

# CURSE OF THE AZURE BONDS

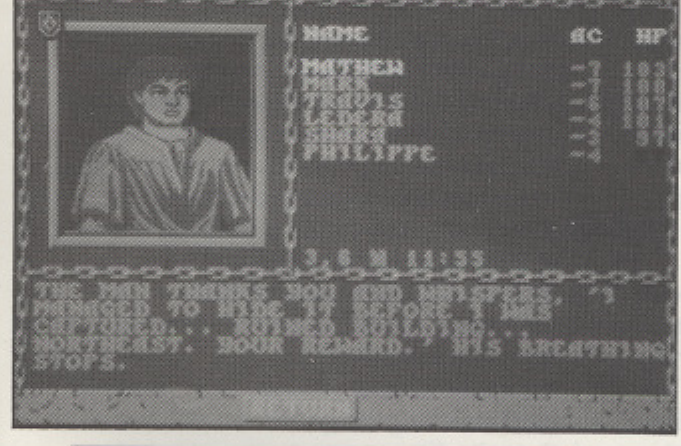
Curse of the Azure Bonds is set in the Forgotten Realms - TSR's most extensive Advanced Dungeons and Dragons campaign - there are countless books, AD&D modules, computer games, comics, etc. covering the exploits of the inhabitants of the Realms. The TSR/SSI AD&D boxes LOOK very similar, but the games inside can be VERY different. Whereas Heroes of the Lance and Dragons of Flame were joystick-driven Action Games and Hillsfar was an Action Adventure, Curse is billed as a Fantasy Role-Playing Epic. What this means is that it is a much more detailed simulation of full AD&D rules in the traditional SSI format (e.g. Demon's Winter). It requires a lot more thought and a lot more time than the other games.

The game system was originally designed for use with the keyboard - type the first letter of a command to execute it or use the arrow keys to select from menus or to move the characters around. Mouse support has been added, but without any redesign, so some parts are really lousy - like having to click on the edge of the battle window to make it scroll! - most are just poor. You can usually issue commands much more quickly with the keyboard so I didn't use the mouse at all!

So that you can use your favourite characters in the game you are allowed to modify stats - you can give yourself maximum Hit Points, Strength, Intelligence, etc., if you wish! The characters created are around 5th Level, so you can get straight into some quite heavy battles with the ability to throw third level spells such as Fireballs right from the start of the game. You will need to rise to 11th and 12th level characters to have a chance of completing the game!

Your characters start with five azure symbols imprinted on their sword arms. You have a little money so you can get kitted up with some basic gear at the forge across the road. Then you explore the town and learn about the symbols - you soon discover that they are the marks of five evil groups who have magically bonded you to become their slaves - your quest is to find and destroy these five groups, thus freeing yourselves and saving the Realms from the evil Tyranthraxus.

There are four main modes of play: in camp or town you will spend LOTS of time selecting items from lists - which spell do you want to memorise, which weapon do you wish to identify or wield, etc. - there is a LOT of information which could be presented a LOT better - if I want to try out half a dozen weapons then I would like to see their effect on my THAC0/DAMAGE immediately; if I am memorising spells I would like to know which ones I already know; if I am dropping gold to unencumber myself I would like to see my new movement rate; all these can only be achieved by switching to a different display! Does anyone ever actually test these things from an ergonomic point of view?




The second mode is the Decision. You are shown a map, an NPC, or a scene with some text below and you must decide what to do next from a selection of three or four options - many will lead you into fights or traps - some will reward you with much treasure if you make the right decisions.

The third mode is exploration - of towns or dungeons. These are standard view ahead scenes, sometimes with an overhead map available on screen. None are particularly hard to map, especially as your facing and co-ordinates are displayed at all times.

The fourth mode - the one you will spend most time in - is the fight! This is an overhead window on the battlefield showing your six characters and all the enemy as individuals - each one gets a chance to act - Move, Aim, Cast, etc. The screen scrolls jerkily and the action is all a little slow as you have to wait for the sound effects and the animation.

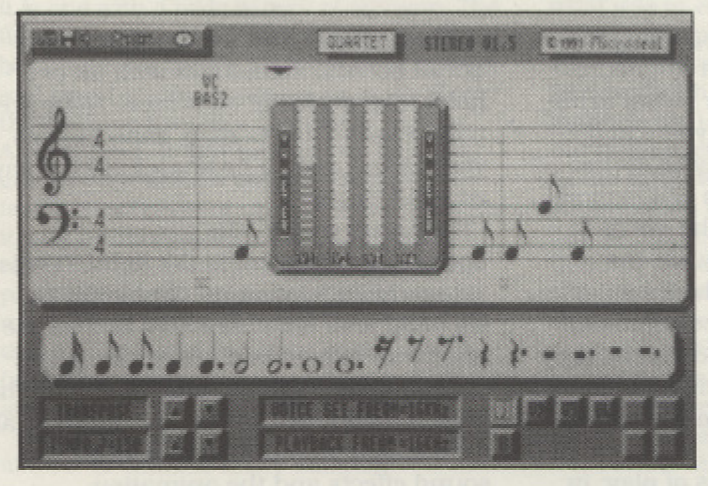
It is easy to go too far too soon. I went into Zhentil Keep too soon, having survived the town and the temple, but then there is no going back - you are forced into a dungeon from which the only exit is guarded by some minotaurs with a Beholder and a Medusa! I had to back off to a Save before entering the Keep and get my characters up quite a few levels by exploring dungeons near places like Shadowdale before I had the slightest chance against the Beholder!

- **SIGHT & SOUND** - *Graphics generally very good - very little animation. Sounds limited, but adequate.*
- **GAMEPLAY** - *VERY detailed, keyboard-driven AD&D - mainly fighting - you need to find lots of magic along the way to help you in the final battles!*
- **VERDICT** - *Good value for money if you like this sort of thing and don't mind the implementation - fits well into the Forgotten Realms mythos.*

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|---|---|
| Title: | CURSE OF THE AZURE BONDS |
| Publisher: | TSR/SSI |
| Price: | £29.95 |
| Reviewer: | John Sweeney |

# SAMPLE THIS!

***In part 3 John S Davison tries more advanced soundtracking software and a better quality sampling cartridge***



In the last issue we looked in detail at Microdeal's Mastersound 2 sampling package, and you may remember that its sample sequencer was ...errrm ... rather basic, to put it kindly. For music making it really deserves to be partnered with a better sequencer, and Microdeal have the answer in the form of **QUARTET**.

This is similar in principle to the NoiseTracker PD program discussed in issue 49, but it's much more comprehensive and friendlier to use. It allows you to manipulate sound samples, package them together, then create sequenced music tracks from them. It can't actually record its own samples, but does come complete with over 100 ready to use drum, synth, and other assorted sounds. Of course, by using a sampler cartridge such as Mastersound you can expand this initial library with your own samples, creating a host of new possibilities.

The Quartet package contains three programs, which will run in medium or high resolution on 520ST/STE's and above. The main one is Quartet itself, which can load a "voice set" file containing up to 20 different samples and play them over a wide pitch range via its sequencer. It uses four monophonic tracks, so can play up to four different samples simultaneously. You can rapidly switch between any of the 20 samples at any point on any track, so it's possible to create far more complex sounding arrangements than you'd think with only four tracks available. Each track automatically repeats when it finishes playing, making the production of repetitive rhythm tracks or shifting cross rhythms very easy. If you're really lazy you only need create one bar of drum rhythm - this will repeat ad infinitum (ad nauseum?) behind whatever you create on the other tracks!

The music editor uses standard music notation rather than the messy hexadecimal data favoured by most other soundtracker programs, permitting music to be created graphically via mouse and icons. It's a bit quirky though, and only displays up to twelve notes on a single track without scrolling. Editing facilities include note and rest editing; insertion of ties and slides between notes; block cut and paste; block transpose; setting of tempo and time signature; playback frequency setting; insertion of voice change commands; and repetition points for looping within a track.

Sequences can be created in step-time using the editor or in real-time using a MIDI keyboard. The latter method quantises your playing to the nearest quaver, so unfortunately it loses notes played quickly. There's no punch-in/out facility either, so corrections are best handled in step-time, which provides semi-quaver resolution.

If you've got a MIDI keyboard you can also exploit Quartet's "polyphonic play" mode. With it you can play any single sample in real-time, with up to four notes sounding simultaneously.

## STEREO PLAYBACK

In its latest incarnation (V1.5) Quartet can handle stereo playback on STE's, or on standard ST's fitted with Microdeal's new **STEREO PLAYBACK** cartridge (see last issue for details). This produces simple spatial left/right separation of different sounds in a mix, and it's surprising the difference this makes! There's probably no measurable increase in sound quality as such, but the subjective improvement is considerable - to my ears anyway!

The package's other major components are the Digital and Voices programs. Digital can process a sample in two different "domains". In the time domain it can play the sample; set its playback volume and frequency; edit out unwanted sections; and set a sample loop point. This last item allows a short sample to be continuously repeated from a given point in its playback cycle, providing a long sustained note without the huge memory requirement of a full sample of the same duration. In fact, Quartet imposes a maximum sample size of 32KB and maximum replay rate of 16kHz for sequenced samples, so Digital is an important tool for converting samples to comply with these limits.

It can also convert a sample to/from the frequency domain using the Fast Fourier Transform têchnique. Beware though, it's not that fast - conversion can take several minutes! It's used when you need to monkey around with frequency related characteristics of the sample, for instance to shift its basic note frequency, or

apply frequency filters or noise reduction techniques to improve sound quality. When you're happy with the sample the Voices program may then be employed to insert it into a "voice set" file along with other samples for use with the sequencer.

It's a pity Quartet is stuck with that 16kHz maximum sampling rate for sequenced samples, as it limits the quality you can achieve on playback. However, with care it can still produce exciting sounding music of reasonable quality. It's probably the best of the currently available soundtracker programs, and when partnered with Mastersound offers virtually everything the newcomer to sampling could want.

## HIGHER QUALITY SOUNDS

After using a low cost sampler such as Mastersound for a while you may find yourself wishing for better quality sounds and more sophisticated ancillary software. If so, then one of Microdeal's more upmarket samplers could interest you. Next up in their range is **REPLAY VIII** (R-8), which sells for £79.95.

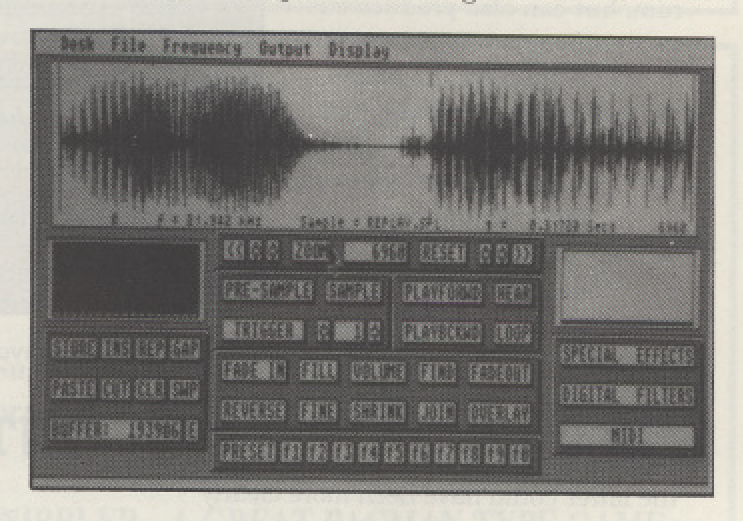
The R-8 package contains the sampling cartridge, a sample recording/editing program, the Drumbeat drum machine program, and a slightly tattily presented 68 page manual. Also included is a PD program for converting samples produced by various other samplers into R-8 format at any required frequency. The software runs in medium or high resolution on 520ST/STE's, but larger memory is needed to fully exploit the higher sampling rates.

The cartridge only has 8-bit resolution, but its accompanying software pushes the sampling rate up to a maximum of 48kHz, over 50% higher than Mastersound. This, plus the anti-aliasing filters on input and output, and direct audio output from a socket on the cartridge itself all help improve the subjective sound quality. Playback can also be via the TV/monitor if required.

R-8's sample editor is similar in principle to Mastersound's editor and Quartet's Digital program, but it includes even more facilities and the overall design gives it a more precise, "professional" feel. For instance the oscilloscope and spectrum analyser are both permanently visible, the latter now having a scale for measuring the frequencies present (hi-res version only). For some reason it's only calibrated up to 6kHz though, which reduces its usefulness somewhat.

Samples can be trimmed to size; unwanted parts snipped out; parts copied, either singly or repetitively to fill a given area of the sample buffer; selective cut and paste operations performed; new samples inserted within the current one, or superimposed over an existing one. Function keys can be used to memorise cursor positions within a sample, and a chosen section within a sample can be looped for sustained sound, with special tools provided to help you find a good looping point - probably THE most difficult task in sample editing.

You can also reverse a sample so it plays backwards; fade it in/out; and apply special effects. These include ramp (pulsating effect); single echo; reverb (more like multiple echoes); flange; and rev-up (echoes with pitch shift - very weird!). Effects may be applied to samples held in memory or in real-time to sounds coming in via R-8's input socket. Yes, your ST can become a digital effects processor!




A sample can be converted into the frequency domain and digitally filtered in many different ways to modify chosen parts of its frequency spectrum. Impressive looking 3D FFT and filter response displays are available to help you analyse a sample's frequency content and choose the right filter for the effect you want. Esoteric stuff!

Up to ten samples can be formed into a sample set, with one sample assigned to each of the ST's function keys. Any sample can then be played monophonically in real-time from a MIDI keyboard, with rapid switching between samples via the function keys. You can also assign any MIDI note as a single key trigger for any sample, but mapping a sample onto a selected range of keys isn't possible. Everything can be saved to disk as a "set" file and reloaded when required, saving you the trouble of reassigning function keys and MIDI triggers every time. Individual samples can also be saved, either in AVR or raw sample format.

## DRUM MACHINE

R-8's Drumbeat program turns your ST into a sampling drum machine. With it you can build a kit of up to 15 different drum samples (or bass notes, rhythm chords, or anything else you fancy) created with R-8, then play these from the built-in pattern based rhythm sequencer. For some reason Drumbeat only plays back through the cartridge's output socket, so to use it you must connect it to an external amplifier.

A rhythm pattern of up to 32 steps may be easily created using the traditional style grid editor provided. You just click the mouse on the grid where you want the chosen drum samples to play, remembering that you can't play more than two different samples simultaneously. You can create up to 50 different patterns in memory, then link them together in any order and reuse them as required to form up to 10 different songs, each of up to 100 pattern entries.

Drumbeat supports MIDI too. Each sample can be assigned a different MIDI note, velocity value, and channel number. On playback of a pattern, appropriate MIDI Note On commands are transmitted via the ST's MIDI OUT port, so can be used to play sounds on an external MIDI drum machine or synth. MIDI clock is also supported, allowing external sequencers and drum machines to be slaved to Drumbeat, or Drumbeat to sync to incoming clock signals from external devices.

Overall I found R-8 capable of good quality sound, especially when using the higher sample rates and direct cartridge output to a hi-fi amplifier. Compared with Mastersound it sounded smoother, losing some of the harshness the former sometimes exhibits. Drum and bass sounds seemed particularly clean, and when sequenced using Drumbeat the overall effect was surprisingly good.

OK, it produces reasonable results, but Drumbeat is only two note polyphonic and playback from a MIDI keyboard is single note only. This can be limiting, but to improve matters you have to move even further upmarket. So, if you'll join me next time we'll do just that, and take a look at Microdeal's current top-of-the-range sampling package known as Replay Professional.

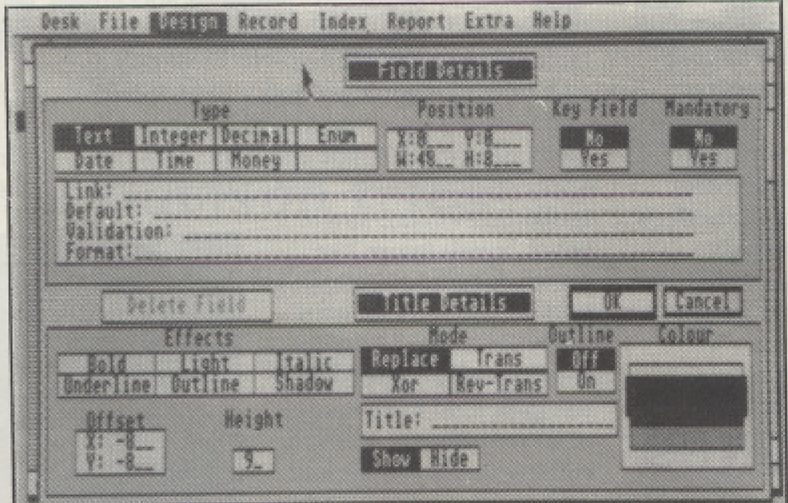
*Newsflash .... as this went to press Microdeal announced a full stereo version of Replay for £89.95. More details next time.*

# DGBASE

DGBase is one of Digita International's products designed for small businesses or serious home use. It's primarily a database program, but can also produce customised reports, labels, and form letters using the simple built-in word processing and mailmerging features. It also offers integration with other products in the Digita range such as their DGCalc spreadsheet and Mailshot-Plus mailing program, and can even interchange data with other programs via ASCII files.

It's supplied on one single sided disk and is accompanied by a nicely produced 58 page instruction manual, although the latter could have been more clearly written in places. The disk also contains several sample databases in packed format, plus a utility program to unpack them onto a separate work disk. These show how you might use DGBase for a number of different applications including school exam results, simple stock control, and club membership details. There's also a separate demo database referenced in the tutorial section of the manual.

DGBase was designed to be flexible. It's GEM based, allowing records to be set up in a scrollable window, so record size isn't limited by screen size. Record layout isn't permanently fixed either, you can add, delete, re-size, and otherwise change fields at any time without affecting existing data - a very useful feature. It also has a global editing facility, which can apply a change across a range of records in the database - for example to reset dates, or to modify the value of selected numeric fields by a given percentage. The program is totally memory resident except for its Help facilities, but you can copy the Help file onto your data disk to avoid the need for disk swapping.




| | |
|---|---|
| Title: | **DGBase** |
| Publisher: | **Digita International** |
| Price: | **£49.95** |
| Reviewer: | **John S Davison** |

## INTERACTIVE DESIGN

Record layout is defined interactively by placing boxes, text, and fields on the screen as required. Boxes are used to visually delineate different areas of the record, and can be specified by size, position, fill pattern, colour, and border type. Text is used for placing helpful comments, titles, etc., on the display, and again you can specify its position, size, colour, and style to suit your requirements.

Data fields consist of two parts, the field title and the actual area used to hold the data. The title is important, as it's used later to identify which fields you want to search or index on. Fields can be specified in a wide range of data formats (currency, floating point, character, hexadecimal, date, etc.) and may be made mandatory to force the user to input data when adding records. Automatic validation can be applied, using either computed limits or discrete enumerated values. Field values can also be computed from the contents of other fields using the four basic arithmetic operators. OK, it's simple, but probably good enough for most home and small business uses.

In use, data is disk resident not memory resident, which could be an important plus if you only have a 512K machine. This approach also allows you to use up to four databases simultaneously and quickly switch between them. The downside is, of course, that access is slowed down as the program has to read chunks of data from disk as it's needed.

## SEARCH AND INDEX

Once a database is set up, records may be retrieved via a useful set of search facilities. Search criteria are specified at the field level using titles defined earlier. All the usual relationships are included (equal, not equal, greater/less than, etc.), and wildcard and case sensitive searches are possible too. Simple arithmetic calculations can be included in the criteria, and several sets of criteria can be logically linked with AND, OR, and NOT operators. You can also index the data on any one of up to four key fields and flip between them at will to control the sequence in which the selected records are retrieved. Records can be added, deleted, or updated at any time, and also transferred between different DGBase files.

The program's report writing facilities allow you to produce customised listings of chosen fields from selected records. You can also produce labels and simple form letters using the mailmerge facility. Unfortunately, these features are rather crudely implemented and not particularly easy to use. However, they do seem to work once you know what you're doing.

Overall, DGBase offers a reasonable set of features, but I found it a little lacking in finesse in places. It worked OK for most of the review period, but it did crash on one occasion and somehow corrupted my data disk, making it totally unusable. Luckily I had a backup copy, so was able to recover! In its present state I feel DGBase is rather overpriced, but you do seem to be able to buy it discounted for around £30 - £35 if you shop around. At this price it's not a bad buy, but itwould be even better if Digita smoothed out some of those rough edges.

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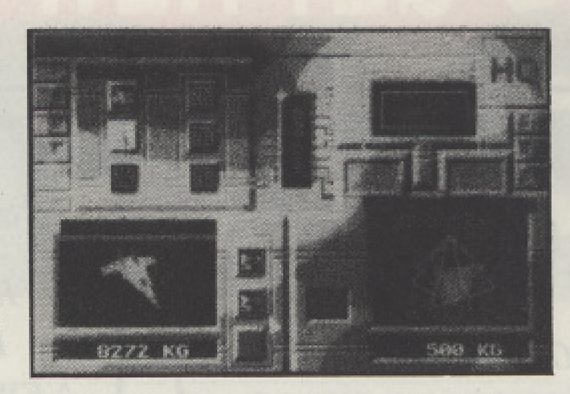
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# ARMOUR-GEDDON



Most ST owners are pleased to see Psygnosis software and this particular offering is no exception, packaged in the normal colourful way with accurate screenshots on the rear. The title screen is strong and well detailed and the loading music gives a strong atmospheric feel. The game comes with a large multi-lingual manual and the play style demands that it is read for the actions are complicated. It transpires that the scenario is one wherein the player, or players if you have a serial link available, are attempting to halt a Post-Holocaust takeover by a resistance movement. As the 'Good Guys' you have to find and re-construct a lost neutron bomb to stop the Star Wars style satellite taking over the earth.

To do this you have a bewildering array of screens from which you must research, build and pilot the craft and weapons that you will use. Should you find that your raw materials are low it is possible to recycle less used or over produced items and obtain extra. The game is played at a very fast pace and even the training mode is rapid. Although this feature may well endear itself to those who have managed to fathom the various outwardly complex screens it could be most off-putting to the newcomer.

The basic idea of play seems to be a reconnaissance on the map to decide where the next exploration or attack from your base will be, the creation of a shopping list of items and weapons and then the selection of appropriate vehicle. These vehicles are varied and offer various strategies to the player. The options are Helicopter - useful for ground attack and scouting, Stealth Fighter - expensive and deadly, Stealth Bomber - to collect bomb parts, Light and Heavy tanks - either as scout or collection vehicles and the handy, go anywhere, Hovercraft. These have to be built, armed and researched. Unfortunately since this takes time and the computer is a most able opponent the player can find themselves under heavy attack on launch and not progress very far.

If arcade strategy with simulator driving is your thing then you could easily grow into Armour_Geddon.

## FACTS

Title: **ARMOUR-GEDDON**
Publisher: **Psygnosis**
Price: **£25.99**
Reviewer: **Damon Howarth**

## SIGHT & SOUND

*Everything I expect from Psygnosis, even the 3D is good. The FX are strong and evocative*

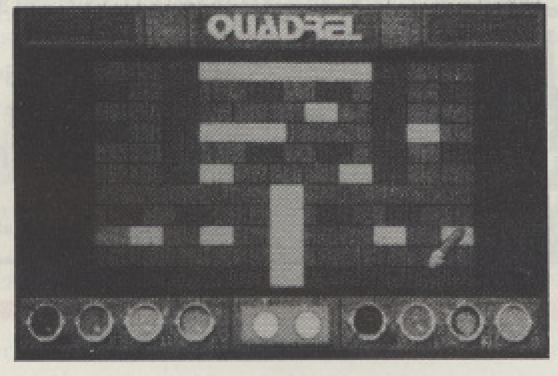
## GAMEPLAY

*Difficult and needing much practice, very fast and there is also the two player option*

## VERDICT

*Needs to be persevered with and then enjoyment will come. Try only if the idea appeals and you have the patience to make it happen*

# QUADREL




## FACTS

Title: **QUADREL**
Publisher: **Loriciel/ Infogrames**
Price: **£24.99**
Reviewer: **John Sweeney**

## SIGHT & SOUND

*Very basic graphics - no sound*

## GAMEPLAY

*Simple logical puzzles with a few twists to make it a little like an arcade game*

## VERDICT

*Not a lasting appeal, and certainly not worth full price, especially with the bugs!*

Did you know that it is impossible to design a map which needs more than four colours if areas which have a common edge must be different colours. This is known as the "Four-Colour Theorem" and has annoyed mathematicians for centuries since it is *extremely* difficult to prove - it was actually only finally proved quite recently with the aid of computers! The theorem only applies to 2-D maps and a sphere counts as a 2D map in this respect. If you imagine a very elastic sphere, puncture it in the middle of one area, then stretch the hole until the sphere is completely flat - all the areas will be very distorted, but they will still bear the same relationship to each other from the point of view of the theorem! On the other hand if your planet happens to be shaped like a torus (a doughnut) then you need seven colours to colour any map on it! And, amazingly, that is much easier to prove!

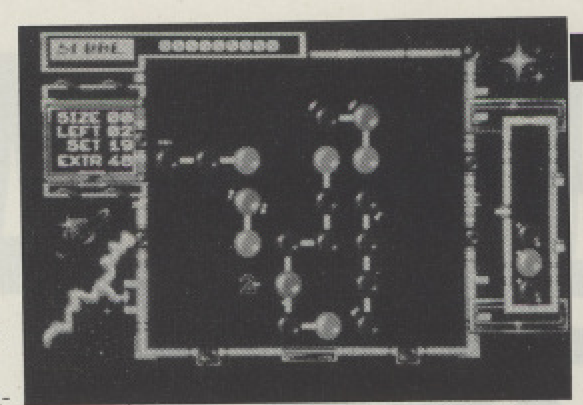
Anyway, those crazy French decided this was a good basis for a game and created Quadrel! You have a limited number of each of four colours and you must use them to colour a map on the screen. To make it a little more interesting there are a variety of "maps", some geometrical, some made of crazy patterns; the "level" determines how much of each colour you have; you can set a timer; and in "controlled" mode the computer selects your next area! Racing against the timer, with limited colours, on a large map, with the computer choosing your next area is *very* difficult!

You can also play against the computer: you start with different numbers of each colour, you take it in turns to paint an area - first one unable to make a legal move loses.

There is *supposed* to be a two-player option, but it doesn't work on the Atari version - Logiciel's solution to this was not to fix the bug, but to put a piece of paper inside the box warning you that the two-player option doesn't work! Gee, thanks, fellas!

Another bug means that on some of the maps there aren't actually enough colours to fill the map - I know that level 3 is supposed to be the hardest, but making it impossible seems a trifle unfair!

# ATOMINO




Psygnosis have found another game to rival the infuriating addictiveness of Lemmings! Packaged in a deceivingly simple box with less than usual of the glamourous graphics associated with the firm, here is a game of delicious subtlety and infinite cunning.

The play is simplicity itself. The player needs to complete atoms from a variety of molecules. Each of the molecules has between one and four connectors and once all these revolving dots are connected to other dots so as no moving parts are available in the one unit, an atom is complete. This has to be completed within the time it takes for the storage bin to fill otherwise it is game over time.

All this is performed with a sturdy joystick control and the act sounds very simple. Indeed the mechanics are that easy, although occasionally a 'Joker' will appear and this will fit wherever it is wanted, and presents the only complication to the game. Although only a simple concept it should be remembered that the highly successful Tetris was just a matter of filling empty space with blocks of connected solids. The variety of quests necessary to fulfil the game make it challenging, the gradation of levels is about right from the very easy learning modes to some extremely complicated higher levels. It is possible to restart at any previously completed level by the use of passwords thereby evading the frustration of beginning at level one every time.

Technically the game is simple the graphics are smooth and colourful and the sound effects adequate but this does not actually matter for the secret of the game is the pure addictiveness. I spent several hours, that felt like minutes, with this game and a friend of mine spent most of her Sunday night and a large portion of a Monday morning spurning sleep to tack up molecules. Like her, I am sure that I can manage just one more level.

The levels consist of different goals, either creating atoms of a minimum number of molecules, removing a screen of atoms or even filling a specific shape. Each has its own delights.

I can say little more than this game is the next Tetris. If you wish your eyes to regain their bags go out and buy it.

## FACTS

Title: **ATOMINO**
Publisher: **Psygnosis**
Price: **£24.99**
Reviewer: **Damon Howarth**

## SIGHT & SOUND

*The graphics are fast and smooth and the sound, though not awe-inspiring, is perfectly adequate*

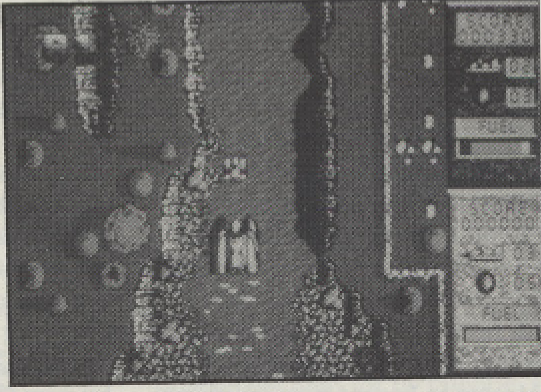
## GAMEPLAY

*Easy to learn, hard to master, smooth controls and an all round satisfying game*

## VERDICT

*BUY IT YESTERDAY!*

# PRO POWERBOAT SIMULATOR




## FACTS

Title: **PRO POWERBOAT SIMULATOR**
Publisher: **Codemaster**
Price: **£4.99**
Reviewer: **Damon Howarth**

## SIGHT & SOUND

*Bright and noisy with good large colourful sprites*

## GAMEPLAY

*Easy to play but slightly harder to master, with no apparent bugs*

## VERDICT

*A playable game with some limited addiction value*

The cover for this budget racer shows two high powered boats racing each other and the title and picture suggest some sort of power boating recreation. The actual game though is more of a race game replete with mobile obstacles and mine laying available from your boat. The scene is far more akin to a James Bond chase than a sports simulator.

Having cleared up this misconception the game itself is quite entertaining. The object appears to be to race around some pretty tricky coastline avoiding pursuing boats and helicopters and not driving on to the shore. The screen is a vertical scrolling tableau of marine paraphernalia including rowing crews and spare mines to be taken aboard as ammunition. The object is to accumulate flags for points and not to run out of fuel by excessive engine use. The game includes several bonus levels which require the operator to race between flags and pick up points on completion.

Graphically the software is very well served with smooth flowing sprites on a very steady and well drawn background, good use is also made of colour and together with adequate engine noises the adrenalin is nudged into the players nervous system. The controls come from either keyboard or a combination of keyboard and joystick, no mouse control in this game. The instructions are sparse although there is little that cannot be picked up after five or ten minutes playing. The most innovative part of the game is the leaping over the boat jumps to obtain speed and distance to avoid various obstacles.

The game has some feeling of "just one more go" about it and once again displays that there are some very worthwhile games available on budget labels. With Christmas coming budget games are bound to hold attractions for those with tight budgets or for parents looking for the less expensive stocking fillers. This game would certainly afford a few hours peace over the holidays for harassed adults. Others contemplating buying the game for themselves, could do a lot worse but it does not have the addictive power of some other games.

# VIRTUAL WORLDS




Here is Domark's Summer Holiday offering, a collection of their Freescape games including one unpublished game. For those unaware of the Freescape system it is a method of 3D block graphic construction that allows the player to explore buildings or worlds within a reality context. The first of the games that used this was Driller, a game I reviewed many, many, months ago in this magazine.

Domark are selling this collection as a form of Virtual Reality which I feel is unfair since it does not really compare to the large scale stuff that the TV science shows demonstrate. In some ways Dungeon Master presents a better virtual reality.

All the games in the collection, Driller, Total Eclipse, CastleMaster and the Crypt (Castle Master 2) use the same basic idea of screen construction. The world, or rooms if the internal scenarios are selected, appear in block shapes that are filled in in various colours. These are the same sort of filled block that Elite players may recognise from docking and fighting in space. All actions are viewed from the first person, that is as though the screen shows only that which your eyes see. Any interaction with the world is through mouse or joystick controlled sights.

Movement can seem fairly slow and ponderous at times and the scaling of objects is sometimes peculiar. All the games share the problem that the player needs to guess what any one particular shape is representing at the time since very few helpful messages appear.

Having looked briefly at the generic state of Freescape it behooves me to look at the games on the disk. The first that I shall discuss is Driller. This game is the oldest of the collection and although not the first Freescape game on the ST is probably the best known. In this the player pilots a mining craft around a cuboid planet looking for crystals and shooting various shapes either to open doors or initiate drilling techniques. The surroundings are fairly basic and very cuboid and reaction times are slow. There is little sound included save for the adequate effects that include the zap of the gun and whirr of engines. Now at this point, to be fair to the collection I must point out that neither Driller or Total eclipse was actually loadable into the ST for on my copy of the game neither of them had a PRG file included. I am therefore reviewing the Driller module from it's original source although I am though quite convinced that the game has not been updated since. Driller felt slow and old at its inception and I am not sure that age will help the more sophisticated player who has seen MidWinter and Dungeon Master to accept it as anything other than a curious antiquity.

The second game was Total Eclipse which sadly was not playable, I have not tried this game before but on reading the manual it would appear that it is in the same mould as both CastleMaster and the Crypt. I would suspect my comments on these two would cover this game too.

CastleMaster was in its day highly advertised and received some critical acclaim. The theory is that the player may select either a prince or princess to go and save their opposite number from the clutches of an evil one. To do this they must enter the castle, kill innumerable spirits and find a collection of keys in order to open the dungeon. The game, as all the others, takes place in first person perspective and offers some challenges, in fact should you not have discovered the drawbridge entry secret, the character can throw rocks at specific places to make mechanical events occur. Oh yes! The sharks in the moat are hungry.

Once the strange blocky world of Freescape is accepted then the action makes some sense. Explore the grounds, carefully avoiding the timing traps and remembering to crouch and crawl while you search, eat the food to gain strength and throw rocks at the spirits in order to exorcise them. These precepts together with an enquiring joystick or mouse will provide most of your answers. The player will find that they walk on objects such as tables or chests regularly and care must be taken to ensure that your orientation is at the right angle. Saved games are possible as some of the problems are quite tricky. The game does not offer the level of graphic authenticity of Chaos or Dungeon Master but does offer some antiquated charm. I enjoyed it but felt the adventure was becoming a little dead end after a while. There is also a lack of either involvement or character building in the adventure.

The Crypt offers more of the same although the location and the monsters are different. Hitherto unpublished this piece would seem to be either the adjunct or part two of Castle Master. The controls and actions are similar as is the presentation. This time though the enemies are various undead and a hoard of spirits caught in the shape of mice. While I applaud the concept of brand new offerings inside a compilation a nagging feeling seems to say that this was done since the game really would not make it in the marketplace as a stand alone effort.

I felt that as a compilation the set was a good idea. If you have never bought any of these games then it may be an interesting investment but unfortunately I fear that Freescape has been overtaken by new techniques which make it appear as eight-bittish as its origins are. I enjoyed the games I could load but I could not say that I felt they would be worth the cost of the pack. Prospective buyers ought to play it first and decide if the blocky medium meets their tastes.

It is perhaps sad to reflect that a deal of thought has gone into this offering and perhaps the creaky mechanics spoil the effort.

**VIRTUAL WORLDS**
**Domark**
**£29.99**
**Reviewed by Damon Howarth**

# HOME ACCOUNTS

Here's another of those 'serious' programs from Digita - aimed, like most of their products, at the home or small business user. This time it's Home Accounts, a package to help you keep track of your financial situation. It runs on any ST/STE, is supplied on one single sided disk, and comes complete with a good quality 37 page instruction manual.

The program allows you to set up details of accounts you have with banks, building societies, etc., and then apply a starting balance plus income and expenditure transactions to them, hence keeping track of their current balances. Minimum and maximum balance limits may be set on each account, enabling the program to warn you of certain impending financial situations requiring your attention. These could include such things as the breaching of agreed credit limits, which could cost you dearly in terms of interest charges if ignored. It could also indicate that there's too much money sloshing around in a low interest account when it could be transferred elsewhere and be earning more. Used properly it seems this program could soon pay for itself!

## A YEAR'S ACCOUNTS

Hom.e Accounts copes with up to 13 accounts of any type, and supports cash transfers between them if required. Each account can handle up to 100 automatic regular transactions (e.g. standing orders), plus up to 360 general transactions. This is probably adequate to cover a year's accounts for most home users, but could be a bit tight for small businesses, who may need greater capacity. You could circumvent this problem by running two sets of half-yearly accounts instead of one annual set, but this introduces an extra level of complexity.

Up to 60 different transaction types can be handled. You can set budgets against these and later use the program's analysis and reporting facilities to track your actual financial performance against them.

Reports are predefined and can't be customised for presentation layout or overall data content. However, the scope of the reports may be varied by including one or more accounts, one or more months, any combination of income/expenditure types, or a subset formed by searching on a string contained in the transaction description field. For example, you could produce a report showing all transactions relating to a particular shop, or all cashpoint machine withdrawals, or all purchases paid for by cheque. Of course, this requires that you use a consistent method of describing the transactions when you enter them, otherwise there's no way you can reliably analyse them later.

## REPORTS

The main report types include straight listings of transactions, with entries sorted into date, type, transaction detail, or amount sequence; comparisons of budget versus actual figures for each transaction type; budget details for the whole year; and details of the main transaction types for reference purposes. In addition the program will also draw barcharts or piecharts showing budgeted versus actual figures for selected transaction types, over selected months and accounts.

## IN USE

At first sight Home Accounts looks pretty good, but in use I found it had a number of niggling faults, particularly in the data entry and editing area. For instance, it always automatically enters the current date against a transaction, forcing you to manually backspace and correct it for all transactions not taking place today. This is a real nuisance if, like me, you do your accounts once a month for all transactions occurring throughout that month. Also, on data entry the cursor doesn't autoskip to the next field when the current field is full, you need to Tab forwards every time. You can't Backspace or Backtab between fields either, you have to use the mouse for this. Nitpicking maybe, but I find such faults annoying in practice as they cause a lot of unnecessary keystrokes.

The piecharts and barcharts seemed like a good idea, but the program doesn't actually print them out for you. You have to display them on the screen and then screendump them via ALT-HELP, which means the printout is cluttered up with sundry garbage such as menus, prompt messages etc., as well as the required chart. The piecharts have no percentage figures against each segment, so you have no accurate quantification of their values. Also, the segments have no labels on them saying what they represent - different fill patterns are used to represent the transaction types, and you have to consult a legend block at the bottom of the chart to determine what each one represents. Barcharts are just as messy.

## CONCLUSION

Personal accounts should be a good application for a home computer, but I feel this version from Digita is spoiled by mediocre design and implementation. The designers really should have spent more time making it more usable. But having said that, it does appear to work and it is reasonably priced, so perhaps I shouldn't be too critical. Overall, it's probably adequate for many home users, but for small business use you might find it a bit limited.

| | |
|---|---|
| Title: | HOME ACCOUNTS |
| Publisher: | Digita International |
| Price: | £24.95 |
| Reviewer: | John S Davison |

PeterHickman's

# STOS COLUMN

***At a very quiet time for STOS related news, Peter Hickman brings you a super utility to customise the way you boot up your Compiler or Interpretor***

Hello STOS users, how are things? Well you will be pleased to know that AMOS 3D is finally in the shops, which means that the STOS version is not far behind. I am told it should be available in around October-(ish), hopefully it should prove it be a useful addition to the STOS range of products.

Unfortunately that seems to be about the only real STOS news, unless you know different of course. If you do have any interesting hints, tips, or unusual uses for STOS why not drop me a line I'm sure that other users would love to hear about them. Ohhh, one small thing is that I have just returned from Europress HQ in Macclesfield to attend a little celebration in honour of the AMOS 3D launch, thanks to David Thomas and Richard "Cat Killer" Vanner for putting my mate and I up for the night, and of course to Marc Dawson for Lunch! I haven't had the photo's developed yet but I promise I'll show you some next time!

## THE ULTIMATE STOS BOOTER

Only one program again this issue, but it is a useful one. Terry Mancey (who is currently putting the finishing touches to some of Fun School 4) has come up with a wonderful program to alter the way STOS boots up. You can choose what Compiler or Interpreter extensions to load (at run time), whether you want floating point switched on or off, in fact you can control almost every part of STOS before you boot it! For this reason it is best that you compile this program. Anyway follow these instructions and you will have a nifty little program at your disposal!

1. Type in PROGRAM 1.
2. Save it onto a nice blank disk with plenty of room.
3. Compile it and store the resulting program in the AUTO folder of your STOS boot disk (remember to call it "STOSBOOT.PRG").
4. That's it!!!!

Now when you boot your STOS disk the STOSBOOT program should load first and you can create your own customised version! Oh and you should remember to un-write protect the disk as the STOS-BOOT program does a little renaming of files to achieve it's miraculous effect.

## THE STOS MAG

Dion Guy has sent me the latest issue of his STOS Magazine, it includes quite a few interesting programs on the disk. One of the most useful is a utility to store up to 15 compacted pictures in one bank! You can find out more by contacting Dion at

**STOS MAGAZINE**
**11 SHORE CRESCENT**
**BISHOPS WALTHAM**
**HANTS**
**SO3 1DZ**

Oh well that's it for this another issue, next time check out the souvenir dart board cover. Yes it's free but only with the STOS column (I am good to you or what?).

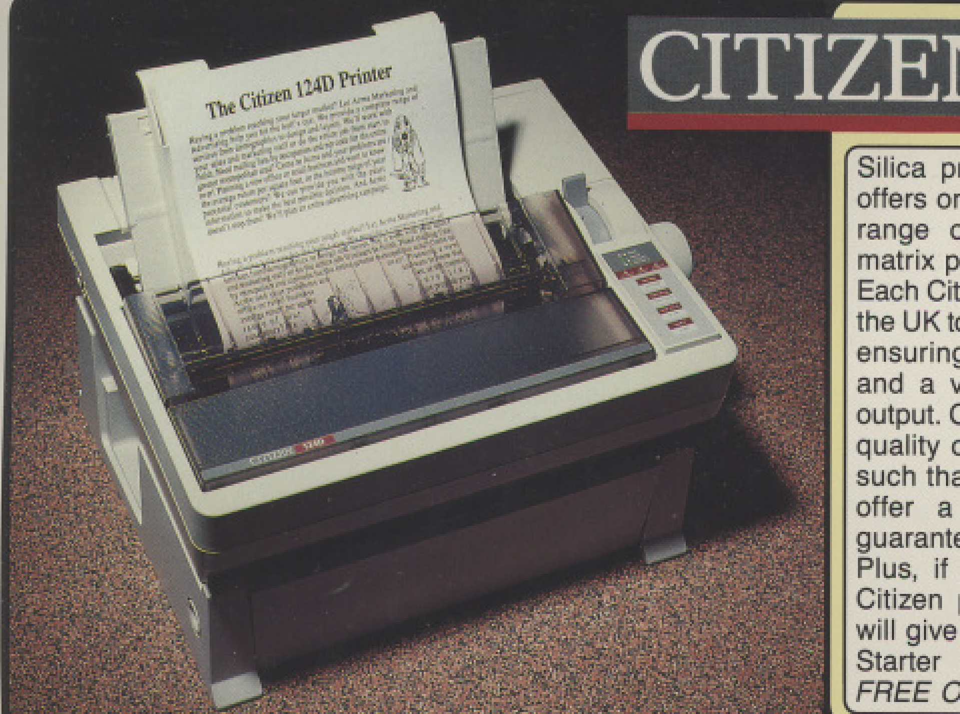
Write to Peter Hickman at the following address

**PETER HICKMAN**
**36 CLEVERLY ESTATE**
**WORMHOLT ROAD**
**LONDON**
**W12 0LX**

```
10 rem *.........................  EXTENSION/ACCESSORY CONFIGURATION UTILITY .........................*
20 rem
25 if mode=2 then stop
30 key off : flash off : curs off : click off : hide on : mode 0 : scroll off
35 windopen 1,0,0,40,12,0,3 : curs off : scroll off
40 pen 1 : locate 0,1 : centre "STOS BOOT v1.0" : cdown : cdown : cdown : centre
"PROGRAMMED BY TERRY MANCEY" : cdown : cdown : cdown : centre "(C)1991 THE
RADIOACTIVE HEDGEHOGS" : locate 0,11 : centre ">>> CHECKING DISK <<<"
50 reserve as work 10,512 : BOOT=start(10) : trap 14,8, .l BOOT, .l 0, .w drive,
.w 1, .w 0, .w 0, .w 1
60 CHECK=0 : for I=0 to 511 step 2 : CHECK=(CHECK+deek(BOOT+I)) mod 65536 : next
I : if CHECK=$1234 then flash 0,"(100,2)(300,2)(500,2)(700,2)(500,2)(300,2)" :
doke BOOT,0 : trap 14,9, .l BOOT, .l 0, .w drive, .w 1, .w 0, .w 0, .w 1 :
locate 0,11 : centre space$(78) : locate 0,11 : centre "VIRUS FOUND, KILLING
VIRUS !!!" else locate 0,11 : centre space$(78) : locate 0,11 : centre "DISK
OK"
70 flash off
80 rem
90 rem *....> Setup screen
110 reserve as screen 15
120 rem
130 rem *....> Setup variables
140 dim REZ$(2),STS$(12),ACB$(64),EXT$(64),SEL(2,64),STAT$(2),EXTL$(64),LAN$(2)
150 STAT$(0)="OFF" : STAT$(1)="ON " : STAT$(2)="OFF" : REZ$(0)="LOW   " :
REZ$(1)="MEDIUM" : LAN$(0)="ENGLISH " : LAN$(1)="FRANCOIS"
160 rem
170 rem *....> Read filenames from disk
180 reserve as work 14,1024 : bload "çSTOSçEDITOR.ENV",14 :
SCRREZ=deek(start(14)) : EDILAN=deek(start(14)+8)
190 AOA=0 : ACB$(0)=dir first$("*.AC?",-1) : if ACB$(0)<>"" then repeat : inc
AOA : ACB$(AOA)=dir next$ : until ACB$(AOA)=""
200 AOE=0 : EXT$(0)=dir first$("çSTOSç*.?X?",-1) : if EXT$(0)<>"" then repeat :
inc AOE : EXT$(AOE)=dir next$ : until EXT$(AOE)=""
210 for I=0 to 64 : SEL(1,I)=0 : SEL(2,I)=0 : ACB$(I)=left$(ACB$(I),12)-" " : if
ACB$(I)-" "="" then ACB$(I)="________.___"
220 next I
230 for I=0 to 64 : EXT$(I)=left$(EXT$(I),12)-" " : if EXT$(I)-" "="" then
EXT$(I)="________.___"
240 next I
250 N$=dir first$("çSTOSçFLOAT102.*",-1) : N$=left$(N$,12)-" " : if
right$(N$,3)="XXX" then SFP=0 else SFP=1
260 N$=dir first$("çAUTOçSTOSRAM.*",-1) : N$=left$(N$,12)-" " : if
right$(N$,3)="XXX" then SRD=0 else if right$(N$,3)="PRG" then SRD=1 else SRD=2
270 rem
280 rem *....> Toggle extensions
290 if AOA>0 then for I=0 to AOA-1 : SEL(1,I)=1+(right$(ACB$(I),1)="X") : next
I
300 if AOE>0 then for I=0 to AOE-1 :
SEL(2,I)=1+(mid$(EXT$(I),len(EXT$(I))-2,1)="X") : next I
310 rem
320 rem *....> Setup screen
330 fade 1 : windel 1 : mode 1 : scroll off : clw
331 palette $0,$777,$200,$22
335 pen 1 : paper 2 : home : print "  <F1> SCREEN MODE : "+REZ$(SCRREZ)+", <F2>
LANGUAGE : "+LAN$(EDILAN)+"          STOS BOOT v1.0  " : locate 0,24 : pen
0-(SRD<>2) : print "  <F3> RAM DISK "+STAT$(SRD); : pen 1 : print ", <F4>
FLOATING POINT MATHS "+STAT$(SFP)+", <HELP> INFORMATION SCREEN  " : paper 3 :
locate 0,2 : print " ACCESSORIES " : locate 0,13 : print " EXTENSIONS " : paper
0 : AOSA=0 : AOSE=0
340 for X=0 to 7 : for Y=0 to 7 : pen 1+(SEL(1,X+Y*8)=1) : paper
0-(SEL(1,X+Y*8)=1) : locate 1+X*10,Y+4 :
TMP$=left$(ACB$(X+Y*8),instr(ACB$(X+Y*8),".")-1) : TMP$=TMP$+space$(8-len(TMP$))
: print TMP$ : pen 1+(SEL(2,X+Y*8)=1) : paper 0-(SEL(2,X+Y*8)=1) : locate
1+X*10,Y+15 : TMP$=left$(EXT$(X+Y*8),instr(EXT$(X+Y*8),".")-1) :
TMP$=TMP$+space$(8-len(TMP$)) : print TMP$ : if SEL(1,X+Y*8)=1 then inc AOSA
350 if SEL(2,X+Y*8)=1 then inc AOSE
360 next Y : next X
370 rem
380 rem *....> Main program
390 X=0 : Y=0 : OX=X : OY=Y
400 rem
410 pen 1 : paper 0 : locate 9+OX*10,OY+4-(OY>7)*3 : print " " : locate
OX*10,OY+4-(OY>7)*3 : print " " : locate 9+X*10,Y+4-(Y>7)*3 : print "<" : locate
X*10,Y+4-(Y>7)*3 : print ">"; : OX=X : OY=Y : clear key : repeat : K$=inkey$ :
K=scancode
420 if Y<8 then pen 1 : paper 0 : locate 58,13 : print space$(22) else if
EXT$(X+(Y-8)*8)<>"________.___" then pen 2 : paper 1 : locate 58,13 : print "
EXTENSION LETTER : ";right$(EXT$(X+(Y-8)*8),1);" " else pen 1 : paper 0 : locate
58,13 : print space$(22)
```

continued

```
430 locate 1+X*10,Y+4-(Y>7)*3 : until K$<>"" or K<>0 : if K=1 then 690 else if
K$=chr$(13) then 540
440 if K=62 then bell : SFP=SFP xor 1 : pen 1 : paper 2 : locate 47,24 : print
STAT$(SFP)
450 if (K=61 and SRD<>2) then bell : SRD=SRD xor 1 : pen 1 : paper 2 : locate
16,24 : print STAT$(SRD)
460 if K=59 then bell : SCRREZ=SCRREZ xor 1 : pen 1 : paper 2 : locate 21,0 :
print REZ$(SCRREZ)
470 if K=60 then bell : EDILAN=EDILAN xor 1 : pen 1 : paper 2 : locate 45,0 :
print LAN$(EDILAN)
480 if K=98 then gosub 720
490 if (K$=" " and Y<8 and AOSA<13) then if ACB$(X+Y*8)<>"________.___" then
bell : SEL(1,X+Y*8)=SEL(1,X+Y*8) xor 1 : pen 1+(SEL(1,X+Y*8)=1) : paper
0-(SEL(1,X+Y*8)=1) : TMP$=left$(ACB$(X+Y*8),instr(ACB$(X+Y*8),".")-1) :
TMP$=TMP$+space$(8-len(TMP$)) : print TMP$ : if SEL(1,X+Y*8)=1 then inc AOSA
else dec AOSA
500 if (K$=" " and Y>7 and AOSE<27) then if EXT$(X+(Y-8)*8)<>"________.___" then
bell : SEL(2,X+(Y-8)*8)=SEL(2,X+(Y-8)*8) xor 1 : pen 1+(SEL(2,X+(Y-8)*8)=1) :
paper 0-(SEL(2,X+(Y-8)*8)=1) :
TMP$=left$(EXT$(X+(Y-8)*8),instr(EXT$(X+(Y-8)*8),".")-1) :
TMP$=TMP$+space$(8-len(TMP$)) : print TMP$ : if SEL(2,X+(Y-8)*8)=1 then inc AOSE
else dec AOSE
510 Y=Y+(Y>0 and K=72) : Y=Y-(Y<15 and K=80) : X=X+(X>0 and K=75) : X=X-(X<7 and
K=77) : goto 410
520 rem
530 rem *""""> Config disk
540 palette $0,$777,$2 : pen 1 : paper 0 : clw : pen 1 : paper 2 : locate 0,10 :
centre " BOOTING STOS BASIC - PLEASE WAIT "
550 if AOA=0 then 580 else for I=0 to AOA-1 :
TEMP$=left$(ACB$(I),len(ACB$(I))-1) : if SEL(1,I)=0 then TEMP$=TEMP$+"X" else
TEMP$=TEMP$+"B"
560 if ACB$(I)<>TEMP$ then rename ACB$(I) to TEMP$
570 next I
580 if AOE=0 then 620 else for I=0 to AOE-1 :
TEMP$=left$(EXT$(I),len(EXT$(I))-3) : if SEL(2,I)=0 then TEMP$=TEMP$+"X" else
TEMP$=TEMP$+"E"
590 TEMP$=TEMP$+right$(EXT$(I),2) : TEMP2$=left$(TEMP$,len(TEMP$)-2) :
TEMP2$=TEMP2$+"C"+right$(TEMP$,1)
600 if EXT$(I)<>TEMP$ then trap 1,$56,0,"çSTOSç"+EXT$(I),"çSTOSç"+TEMP$ :
mid$(EXT$(I),len(EXT$(I))-1)="C" : trap
1,$56,0,"çCOMPILERç"+EXT$(I),"çCOMPILERç"+TEMP2$,12
610 next I
620 if SRD=0 then trap 1,$56,0,"çAUTOçSTOSRAM.PRG","çAUTOçSTOSRAM.XXX",12 else
trap 1,$56,0,"çAUTOçSTOSRAM.XXX","çAUTOçSTOSRAM.PRG",12
630 if SFP=0 then trap 1,$56,0,"çSTOSçFLOAT102.BIN","çSTOSçFLOAT102.BIX",12 :
trap 1,$56,0,"çCOMPILERçFLOAT102.LIB","çCOMPILERçFLOAT102.LIX" else trap
1,$56,0,"çSTOSçFLOAT102.BIX","çSTOSçFLOAT102.BIN",12 : trap
1,$56,0,"çCOMPILERçFLOAT102.LIX","çCOMPILERçFLOAT102.LIB"
640 for I=0 to 12 : STS$(I)="" : next I : P=0 : for I=0 to 64 : if SEL(1,I)=1
then STS$(P)=left$(ACB$(I),instr(ACB$(I),"."))+"ACB" : inc P
650 next I
660 AD=start(14) : for X=0 to 11 : for Y=0 to 12 : poke AD+810+X*13+Y,0 : next Y
: next X
670 for X=0 to 11 : A$=STS$(X) : if len(A$) then for Y=1 to len(A$) : poke
AD+809+X*13+Y,asc(mid$(A$,Y,1)) : next Y
680 next X : doke AD+966,0 : doke AD,SCRREZ : doke AD+8,EDILAN : bsave
"çSTOSçEDITOR.ENV",start(14) to start(14)+968
690 erase 10 : erase 14 : erase 15 : fade 3 : wait 3*7 : clw : stop
700 rem
710 rem *""""> INFORMATION
720 screen copy physic to 15 : ink 2 : bar 16,16 to 623,183 : ink 1 : box 18,18
to 621,181 : pen 1 : paper 2
730 under on : locate 0,5 : centre "ST PROGRAMMER" : under off : cdown : cdown :
cdown : centre "YOU TO CAN PROGRAM IN 68000 ASSEMBLY LANGUAGE AND STOS BASIC!" :
cdown : cdown : centre "* EVERY ISSUE IS PACKED WITH STOS BASIC AND ASSEMBLY
LANGUAGE SOURCE CODE" : cdown : cdown : centre "* EACH ISSUE CONTAINS ARTICLES
ON SPRITE MOVEMENT, COLLISION DETECTION," : cdown : centre "MUSIC, SCROLLING
etc." : cdown : cdown : centre "* WRITE PROGRAMS WITH EASE USING THE ROUTINE
LIBRARIES SUPPLIED"
740 cdown : cdown : centre "* SIX ISSUES PER YEAR" : cdown : cdown : centre "*
ALL THIS AND MUCH MORE FOR £12 MEMBERSHIP PER YEAR (OVERSEAS £18)" : wait key
750 ink 2 : bar 16,16 to 623,183 : ink 1 : box 18,18 to 621,181 : pen 1 : paper
2
760 under on : locate 0,7 : centre "FOR MORE INFORMATION CONTACT" : under off :
locate 0,10 : centre "RIVERDENE PDL (ST PROGRAMMER)," : cdown : centre "30A
SCHOOL ROAD," : cdown : centre "TILEHURST," : cdown : centre "READING," : cdown
: centre "BERKSHIRE," : cdown : centre "RG3 5AN, ENGLAND." : cdown : cdown :
centre "TEL:(0734) 452416   FAX:(0734) 451239"
770 wait key : screen copy 15 to physic : return
```




# CITIZEN PRINTERS

Silica presents some great offers on the award winning range of high quality dot matrix printers from Citizen. Each Citizen printer is built in the UK to exacting standards, ensuring superb reliability and a very high quality of output. Our confidence in the quality of Citizen printers is such that we are pleased to offer a unique two year guarantee with every printer. Plus, if you purchase your Citizen printer from us, we will give you a Silica Printer Starter Kit (worth £29.95), *FREE OF CHARGE!*

**FREE DELIVERY**
Next Day - Anywhere in the UK mainland

**FREE STARTER KIT**
Worth £29.95 - With every Citizen printer from Silica.

**FREE COLOUR KIT**
Worth £39.95 - With Swift 9 and Swift 24 printers.

**2 YEAR WARRANTY**
Silica offer a 2 year warranty (including the printer head) with every Citizen printer purchased from Silica.

**WINDOWS 3.0**
Free Windows 3.0 driver - In the Silica Starter Kit.

**FREE HELPLINE**
Technical support helpline open during office hours.

**MADE IN THE UK**
Citizen printers are manufactured to high standards.

## 144 CPS DRAFT 9 PIN



### CITIZEN 120D+

The Citizen 120D+ is one of the UK's best selling printers. It has a stylish appearance and excellent features and performance for such an inexpensive printer. The 120D+ is available with either a serial or parallel interface and is an ideal first printer.

- *9-pin Printhead*
- *Print Speed 144cps Draft*
- *30cps NLQ*
- *Epson & IBM Graphics Emulation*
- *Pull Tractor & Bottom Feed*
- *Superior Graphics - 240x216dpi*
- *FREE Starter Kit*

RRP ............. £233.83
STARTER KIT .... £29.95
*TOTAL RRP:* £263.78
*SAVING:* £112.20
*SILICA PRICE:* £151.58

**£129**
+VAT = £151.58

## 144 CPS DRAFT 24 PIN




### CITIZEN 124D

The award winning Citizen 124D brings high quality 24-pin dot matrix printing within every computer users reach. It is the ideal choice where high quality printing is required at a budget price.

- *24-pin Impact Printer*
- *Print Speed 144cps Draft*
- *2 LQ Fonts (48cps)*
- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *Superior Graphics - 360x360dpi*
- *FREE Starter Kit*

RRP ............. £292.58
STARTER KIT .... £29.95
*TOTAL RRP:* £322.53
*SAVING:* £112.20
*SILICA PRICE:* £210.33

**£179**
+VAT = £210.33

## 192 CPS DRAFT 9 PIN




### SWIFT 9 - COLOUR!

The Citizen Swift 9 is perfect for those who require high quality dot matrix black or colour printing at a budget price. The print quality of Swift 9 rivals that of other manufacturer's 24-pin models.

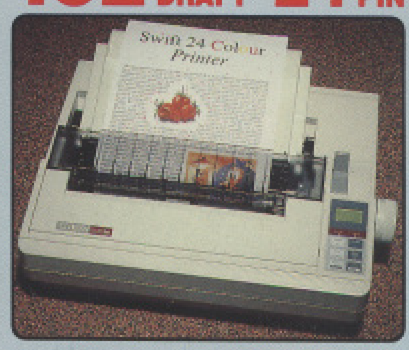
- *9-pin Impact Printer*
- *Print Speed 192cps Draft*
- *3 NLQ Fonts (48cps)*
- *8K Buffer*
- *Epson & IBM Graphics Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

RRP ............. £280.83
STARTER KIT .... £29.95
COLOUR KIT .... £44.65
*TOTAL RRP:* £355.43
*SAVING:* £133.35
*SILICA PRICE:* £222.08

**£189**
+VAT = £222.08

## 192 CPS DRAFT 24 PIN




### SWIFT 24 - COLOUR!

The Citizen Swift 24 is one of Europe's best selling printers and has won awards including Printer Of The Year 1990. Its rapid print speed, quality and black or colour options, make it a natural choice.

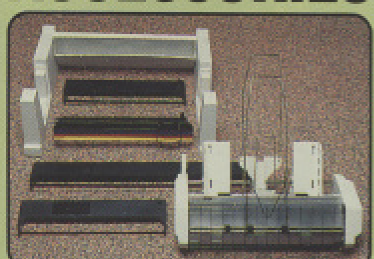
- *24-pin Impact Printer*
- *Print Speed 192cps Draft*
- *4 NLQ Fonts (64cps)*
- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

RRP ............. £428.88
STARTER KIT .... £29.95
COLOUR KIT .... £44.65
*TOTAL RRP:* £503.48
*SAVING:* £199.15
*SILICA PRICE:* £304.33

**£259**
+VAT=£304.33

## PRINTER ACCESSORIES



**SHEET FEEDERS**
PRA 1200 120D .......... £71.38
PRA 1215 124D/Swift 9/24 .......... £88.70
PRA 1228 124D/Swift 9/24 .......... £42.00

**SERIAL INTERFACES**
PRA 1189 120D+ .......... £56.45
PRA 1209 Swift 9/124D .......... £32.25
PRA 1709 Swift 24 .......... £26.38

**PRINTER STAND**
PRA 1242 124D/Swift 9/24 .......... £24.03

**ORIGINAL RIBBONS**
RIB 3520 120D/Swift 9 Black .......... £4.11
RIB 3924 124D/Swift 24 Black .......... £4.70
RIB 3936 Swift 9/24 Colour .......... £15.63

**COLOUR KITS**
PRA 1236 Swift 9/24 .......... £39.65

All prices include VAT and Free delivery.

## FREE! STARTER KIT

Every Citizen printer from Silica, comes complete with the Silica Printer Starter Kit, including everything you need to get up and running with your new printer immediately, FREE OF CHARGE!

- *3½" Dual Format Disk with Amiga & ST Printer Drivers*
- *3½" Disk with Drivers for Microsoft Windows 3*
- *2 Metre Parallel Printer Cable*
- *200 Sheets of High Quality Continuous Paper*
- *200 Continuous Address Labels on Tractor Feed*
- *5 Continuous Envelopes on Tractor Feed*

If you already own a printer, and would like a Silica Printer Starter Kit, you may order one (ref: KIT 5000) for the special Silica price of £24.95 - £5 off RRP!

NORMAL RRP
**£29.95**

## SILICA SYSTEMS OFFERS YOU

- *FREE OVERNIGHT COURIER DELIVERY:* On all hardware orders shipped in the UK.
- *TECHNICAL SUPPORT HELPLINE:* Team of PC technical experts at your service.
- *PRICE MATCH:* We normally match competitors on a "Same product - Same price" basis.
- *ESTABLISHED 12 YEARS:* Proven track record in professional computer sales.
- *£13M TURNOVER (with 60 staff):* Solid and reliable with maintained growth.
- *BUSINESS/EDUCATION/GOVERNMENT:* Volume discounts available for large orders.
- *SHOWROOMS:* Demonstration and training facilities at our London & Sidcup branches.
- *THE FULL STOCK RANGE:* All of your PC requirements from one supplier.
- *FREE CATALOGUES:* Will be mailed to you with offers and software/peripheral details.
- *PAYMENT:* By cash, cheque and all major credit cards.

Before you decide when to buy your new printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or some technical help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is one of the UKs leading independent computer dealers and provides a quality service to users at home, in education and in business throughout the nation. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature on the Citizen printer range and begin to experience the "Silica Systems Service".




| | | |
|---|---|---|
| **MAIL ORDER:** Order Lines Open: Mon-Sat 9.00am-6.00pm | 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX. No Late Night Opening | **Tel: 081-309 1111** Fax No: 081-308 0608 |
| **LONDON SHOP:** Opening Hours: Mon-Sat 9.30am-6.00pm | 52 Tottenham Court Road, London, W1P 0BA. No Late Night Opening | **Tel: 071-580 4000** Fax No: 071-323 4737 |
| **LONDON SHOP:** Opening Hours: Mon-Sat 9.30am-6.00pm | Selfridges (1st Floor), Oxford Street, London, W1A 1AB. Late Night: Thursday until 8pm | **Tel: 071-629 1234** Extension: 3914 |
| **SIDCUP SHOP:** Opening Hours: Mon-Sat 9.00am-5.30pm | 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX. Late Night: Friday until 7pm | **Tel: 081-302 8811** Fax No: 081-309 0017 |

To: Silica Systems, Dept PSIX-1191-55 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

**PLEASE SEND CITIZEN PRINTER INFORMATION**

Mr/Mrs/Ms: ......... Initials: .............. Surname: ..............................

Address: ..............................

..............................

.............................. Postcode: ..............................

Tel (Home): .............................. Tel (Work): ..............................

Company Name (if applicable): ..............................

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